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ABSTRACT

Infant and child health and nutrition education messages patterned after the reach-and-frequency technique of commercial advertising were broadcast to target groups of young mothers over local radio stations in the Philippines and Nicaragua for one year without the support of more conventional education methods. The messages were developed in consultation with local health and nutrition authorities, recorded using professional talent from local radio stations, pre-tested with representatives of the target audience, and aired according to the listening habits of the target groups. Evaluation data were gathered through questionnaires administered to mothers in their homes in baseline studies, six months after broadcasts began, and 12 months after the baseline. One thousand young mothers were interviewed in each wave of the interviews. Interviews were supplemented by self-administered questionnaires to doctors, teachers, and other community workers. Results indicated that the broadcasting was successful in improving practices of infant and child health and nutrition care. The reach-and-frequency technique provided a discipline that renders broadcasting to unorganized audiences--the most inexpensive use of radio--effective in bringing about changes in behavior, as well as attitudes and knowledge. Appendices include a household questionnaire, a questionnaire to community workers, a message test questionnaire, a letter to community workers, and examples of the actual radio messages. (Author/CMV)

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RADIO, ADVERTISING TECHNIQUES, AND NUTRITION EDUCATION: A SUMMARY OF A FIELD EXPERIMENT IN THE PHILIPPINES AND NICARAGUA

U S DEPARTMENT OF HEALTH EDUCATION & WELFARE NATIONAL INSTITUTE OF EDUCATION

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FINAL REPORT

This project has been conducted under Contract AID/ta-C-1133, Office of Nutrition, Technical Assistance Bureau, Agency for International Development, Washington, D. C.

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PREFACE

Over the years, the nutrition community has often complained about the harmful effects of advertising and the promotion of nutritionally undesirable food products. Concerned with the continually increasing consumption of sugar-coated breakfast cereals, sugar-laden soft drinks, and an assortment of so-called junk foods, nutritionists and a relatively small but growing group of concerned citizens are highly critical of the advertising industry as well as of food manufacturers. They express frustration and resentment that the industry is able to get the public to internalize ideas and change behavior, adopting new eating patterns or new foods that are nutritionally inferior or even harmful. This concern is universal and has been expressed in the United States and also in developing countries where the influences of mass media and advertising are increasing.

The growing expression of concern by the public, and occasionally by the Congress, is testimony to the great power of advertising techniques. The sales charts provide proof that the carefully planned use of mass media to bring short, simple and carefully designed messages with pre-determined frequency to a target group is an effective way to bring about changes in consumers' attitude and behavior.

Why could not the same power be harnessed and the same techniques employed to bring about nutritionally desirable behavior? Would it not be possible in this way to influence people to boil water, to wash hands before eating, to breast feed children, to supplement breast feeding after the age of 5 or 6 months? Could poorly educated women be "taught" to continue to feed the child during a bout of diarrhea and to give a liquid solution which is not a usual part of the diet? Would it be possible to get women to "fortify" traditional dishes?

For the past six years, the Agency for International Development and Manoff International Inc. have been seeking answers to these questions. Manoff International is a private organization which draws on the staff and experience of Richard K. Manoff, Inc., a New York advertising firm with interest in applying the proven communication techniques of the industry to socially useful purposes.

Initial probes in several countries and a test campaign in Ecuador made possible the refinement of techniques, and this led to field experiments in Nicaragua and the Philippines. The results of these experiments are presented here, and they provide some of the best evidence to date that it is indeed possible to use modern advertising techniques to bring about positive changes in nutrition-related behavior in traditional settings. These studies also suggest that the addition of the advertising mass media component to ongoing interpersonal nutrition education programs may provide a "multiplier effect" of considerable impact on bringing about change.

Much additional work is needed to refine the adaptation of this approach to different socio-cultural conditions. As more applications are made, it is important that professional standards of project design and evaluation are established so that a body of comparative experience can be developed.

The investigators have provided an initial methodology that is already being adapted to different field situations in several developing countries. Mass media is a powerful educational tool. It is important that those who program its application exercise care in order to ensure its proper use.

Martin J. Forman
Director
Office of Nutrition
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ABSTRACT

Health and nutrition education messages patterned after the reach-and-frequency technique of commercial advertising have led to significant gains in knowledge, increases in positive attitudes, and changes in behavior. The messages were broadcast over local stations for up to one year without the support of more conventional education methods, other than those going on before the project began.

The experiment was funded by the Agency for International Development and carried out in the Philippines and Nicaragua. The themes and messages were developed in consultation with local health and nutrition authorities, recorded using professional talent from local radio stations, tested with representatives of the target audience before airing them, redrafted, and aired according to the listening habits of the target group.

In the Philippines, the messages were directed to mothers of children under 12 months. A dialogue between a young mother and her mother presented how to enrich a 6-month-old child's rice porridge with oil, fish, and vegetables for calories, protein, and vitamins.

In Nicaragua, the messages were directed to mothers of children 5 years old and under. In six separate messages, a doctor and a village wise woman, Doña Carmen, instructed mothers how best to care for their children with diarrhea. The instructions included a recipe and dosage for a homemade rehydration fluid, Super Limonada; the proper food for a child with diarrhea; warnings about giving purges; and the necessity of seeking medical help for serious cases.

The messages were broadcast for approximately one year in each country. Evaluation data were gathered through questionnaires administered to mothers in their homes in baseline studies, 6 months after broadcasts began, and 12 months after the baseline. One thousand mothers were interviewed in each wave of interviews. In the Philippines, the interviews were divided — 700 in the test group and 300 in the control group. A control group was not possible in Nicaragua. Interviews in both countries were supplemented by self-administered questionnaires to doctors, teachers, and other community workers.

RESULTS

In the Philippines, 24% of mothers of infants 6-12 months old reported enriching their child's rice porridge with oil after 12 months of broadcasts, where none did at the baseline (N = 140).

Twenty-seven per cent reported adding chopped fish when 17% did before, an increase of 10% (N = 136).

Seventeen per cent reported adding vegetables where 5% had before, an increase of 12% (N = 136).

Positive attitudes toward putting oil in *lugaw* (rice porridge) increased from 15% (N = 700) at the baseline to 74% (N = 660) after one year; toward adding fish, from 48% to 81%; and toward adding vegetables, from 49% to 79%.

Knowledge of why oil was good for the baby increased from 4% to 25% after one year of broadcast, an increase of 21%.

Seventy-five per cent of all mothers could recall correctly at least one message element, although radio ownership is only 48%.

Most of the changes occurred in the first 6 months of the broadcasts, after which a plateau was maintained. The leveling off is attributed to a marked decrease in exposure to the messages, especially from the most popular stations, and possible message fatigue.

In Nicaragua, after one year, 25% (N = 940) of mothers with children under 5 report using Super Limonada for their child's last case of diarrhea, where 2% had been giving lemonade before.

The incidence of feeding during diarrhea increased by about 10%.

Eighty-nine per cent of all respondents knew the purpose of Super Limonada, 55% knew the important ingredients in the correct amounts, and 41% volunteered the correct dosage.

Sixty-five per cent of the respondents could correctly recall at least one element of the messages.

The practice of giving purges, a common detrimental custom, does not seem to have changed.

The implications of the experiment are that the reach-and-frequency technique provides a discipline that can render broadcasting to unorganized audiences, the most inexpensive use of radio, effective in bringing about behavior change as well as attitude and knowledge change. It appears that the project development approach may also be useful for planning and implementing other forms of nutrition and health education, including longer radio programs, posters, pamphlets, etc. Creative talent and management support are available in most countries, although the impetus for developing the programs and initial technical assistance may have to come from outside.

ACKNOWLEDGMENTS

The authors gratefully acknowledge the financial and technical support of the Offices of Nutrition and Education and Human Resources, Agency for International Development, and the Republics of Nicaragua and the Philippines in making this project possible.

Special mention should be made of the cooperation provided by the National Nutrition Council and the National Media Production Center of the Philippines. Dr. Josefina S. Patron, Chief, Office of Planning and Development, National Media Production Center, served as co-project director and was particularly helpful in interpreting the research findings.

In Nicaragua, first the Ministry of Public Health and later the Comite Tecnico de Nutricion provided material and technical support for the project. Lic. Alfonso Deshon, Executive Director of the Comite Tecnico de Nutricion, and Lic. Aminta Rodriguez of the Division of Nutrition of the Ministry of Health merit special mention for their assistance.

Both projects were reviewed by a technical panel led by Dr. Anthony J. Meyer on leave to the Agency for International Development from Stanford University. Members of the panel included Dr. Stephen N. Barton, Director of the Clearinghouse for Rural Health Services Research; William D. Novelli, President, Porter, Novelli and Associates Inc.; and Dr. Robert C. Hornik, Assistant Professor of Communications, Stanford University. Their comments were particularly helpful in setting this project in the context of the broader field of communications.

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INTRODUCTION

Nutrition planners in developing countries increasingly recognize that an essential component of health and nutrition improvement programs is education of the public about better food choices and health care. Faced with nutrition and health problems affecting 70%-80% of their populations, they are searching for methods to extend services and education to as many members of their target groups as possible.

Many also recognize that the mass media have the potential to reach large numbers of low-income rural and urban families who have little or no access to more traditional sources of health or nutrition education. However, few health or nutrition programs have systematically exploited this potential. Even fewer have designed radio programs that include an evaluation component, the results of which would enable others to judge the relative effectiveness of the mass media compared with other methods.

This paper presents the results of a field experiment, funded by the Agency for International Development, testing one such systematic approach, the advertising approach or the "reach and frequency" technique, in health and nutrition education programs in the Philippines and Nicaragua.

A. REASONS FOR THIS APPROACH

Of the mass media available in developing countries, radio is the most ubiquitous. Open broadcasting, *i.e.*, programming aired to unorganized audiences without support of groups or classrooms, is the least expensive technique of using the radio.

A review of the literature, however, reveals that this use of radio has been applied most often to bring information and news to mass audiences, rather than to emphasize desired behavior change. An example is Zaire's doctor on the radio[1] who answers questions from rural listeners 15 minutes a week. Although he has developed quite a following, his purpose is to deal with a wide range of problems rather than to focus on specific new behavior. Another example is the Tabacundo roving cassette

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[1] Emile G. McAnany. *Radio's Role in Development: Five Strategies of Use*. Clearinghouse on Development Communication. Number 4.

reporter in rural Ecuador,[2] where the source of program information is reversed, relying on the target audience to direct the programmer, rather than imposing program decisions on the audience. Although "educational" programs of these and other types, such as those directed to women's interests, are widespread and heard frequently, there has been little evaluation done on them.[3] This finding is echoed by Dr. Eugenia Whitehead in her literature search for health and nutrition education programs involving mass media.[4]

Although program planners have considered open-broadcast radio effective in bringing new knowledge to rural populations and in changing attitudes, they have turned to organized learning groups such as listening forums or classrooms, all accompanied by monitors or teachers, in order to bring about behavior change. Reports of work done in this field have been well documented by McAnany,[5] Spain and Jamison,[6] in the IIEP Case Studies for Planners, and in individual publications such as that describing Radio Santa Maria in the Dominican Republic.[7]

Usually educational open broadcasting does not set specific objectives, and little evaluation is undertaken. On the other hand, open broadcasting for commercial purposes has developed these components to a high degree. Given a scarcity of resources — time and money — commercial advertising agencies have learned to research their audience and their product, and to test materials with the target audience before airing them. They also evaluate effectiveness by monitoring sales and response to the messages.

The key to the success of advertising, one form of commercial open broadcasting, has been the short, prerecorded message, aired at times a particular audience has been previously determined to be listening to radio, watching television, or reading a magazine. Its effectiveness is based on knowing an audience in order to "reach" it, and on reaching the audience repeatedly — thus the name of the technique, "reach and frequency."

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[2] Jonathan Gunter and James Theroux. *Open Broadcast Educational Radio: Three Paradigms.* UNESCO. June 1977 issue of *Prospects.*

[3] McAnany, *op. cit.*

[4] Eugenia Whitehead. *Nutrition Education Research Project, Report of Phase I,* Iowa University, October 1970.

[5] *Op. cit.*

[6] Peter L. Spain, Dean T. Jamison, and Emile G. McAnany. *Radio for Education and Development: Case Studies* Vols. I and II. World Bank Staff Working Paper No. 266, May 1977.

[7] Robert A. White. *Una Radioemisora Educativa y Cultural: Radio Santa Maria.* Estudios Sociales, No. 36, Santo Domingo.

Specifically, the characteristics which distinguish this technique from others are these:

First, major costs are incurred in message and project design, not for ongoing management time. Research of the target audience and testing of the messages are of paramount importance to the success of the project, but these costs are greatest at the outset of the first campaign. Though this is true of other carefully planned programs, the gap between startup and ongoing costs is greater with this approach. Since several campaigns can be developed simultaneously, and the messages are intended to be played for long periods of time, initial costs can be spread over succeeding months.

Secondly, the messages are short, and can thus be inserted into programs that already have a loyal following, rather than attempting to build new audiences. This insures that from the outset the messages reach the largest number of people as frequently as possible.

Longer programs may require months or years before obtaining the reach of shorter, more frequently repeated messages. Often, programmers are not even aware if their target group is listening or not. Study by an outside observer of a longer family planning program broadcast in Santo Domingo, Dominican Republic, showed that only four women of childbearing age were listening to the station at the hour on which the program was broadcast.

By comparison, in the Philippines and Nicaragua, short messages have been correctly recalled by up to 75% of the radio audience 12 months after broadcasts began, and knowledge and attitude changes were recorded in 25%-75% of the target group.

The reach-and-frequency technique is not always the most appropriate programming strategy; the choice depends on the analysis of the target group, the objectives of the program, and the media situation. However, the experiment reported here indicates the tremendous potential of this approach for influencing the attitudes, knowledge, and behavior of large numbers of illiterate or low-literacy families. The techniques, such as topic and audience research, testing of program materials, and formative evaluation, can also be said to form a discipline applicable to other types of educational programming; *e.g.*, longer programs directed to health workers.

It should be pointed out that short messages have been used before for campaigns of various types, such as encouraging residents to visit the health clinic for innoculations, but the programs have

not been evaluated.[8] In addition, they were aired for only short periods, whereas the programs reported on here were tested for a year, and are to be continued, with appropriate modification, for as long as the problem being treated exists.

B. HISTORY OF THE PROJECT

The approach was pilot tested in Ecuador. The results showed the promise of its use for nutrition and health education. As interest intensified in finding more effective nutrition education techniques and in evaluating the approach more thoroughly, the Office of Nutrition, AID/Washington sponsored experiments in two new countries: the Philippines and Nicaragua.

The experiments serve two main purposes:

The first is to test the effectiveness of carefully designed and frequently broadcast short, prerecorded radio messages to bring about changes in food habits, attitudes, and knowledge in large groups of rural mothers. Although the project designers were aware that integrating the messages into other programs might have increased their impact, the messages were not accompanied by the usual face-to-face communication, posters, seminars, or Mothers' Clubs, other than those which were operating before the broadcasts began. However, these programs were not focused on the lugaw enrichment objectives. The absence of other enrichment programs facilitated tracking the effect of radio alone to bring about change.

Secondly, the project suggests an approach that may be practical and reasonable for other developing countries to adapt and weave into their existing nutrition and health education programs.

C. PROJECT STRATEGY

The strategy of this project is an adaptation of some of the key elements of modern marketing to nutrition and health education programs in developing countries. These elements, as modified for developing a nutrition education program, are presented in Figure 1.

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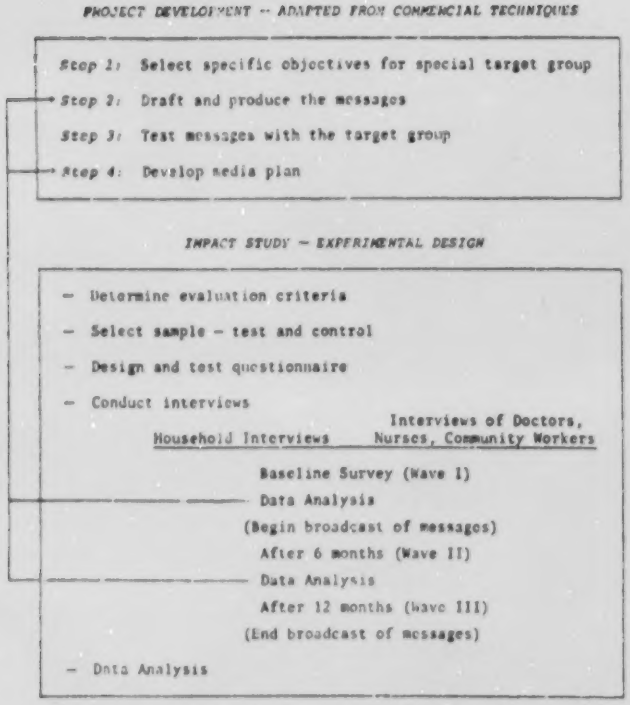
[8] The notable exception is the Stanford Heart Disease Prevention program (1972-73) which, however, did not test radio alone, but in conjunction with television spots, newspaper articles, and posters. The results of the project showed that residents exposed to person-to-person counseling lowered their heart disease risk factors more quickly than did those exposed only to the mass media, but that after 2 years both groups had reached similar levels on most key indicators.

FIGURE 1

PROJECT STRATEGY


PROJECT DEVELOPMENT -- ADAPTED FROM COMMERCIAL TECHNIQUES
Step 1: Select specific objectives for special target group
Step 2: Draft and produce the messages
Step 3: Test messages with the target group
Step 4: Develop media plan
IMPACT STUDY -- EXPERIMENTAL DESIGN
- Determine evaluation criteria
- Select sample - test and control
- Design and test questionnaire
- Conduct interviews
Household Interviews
Interviews of Doctors, Nurses, Community Workers
Baseline Survey (Wave I)
Data Analysis
(Begin broadcast of messages)
After 6 months (Wave II)
Data Analysis
After 12 months (Wave III)
(End broadcast of messages)
- Data Analysis

The Project Development phase is comprised of four steps culminating in the broadcast of carefully designed, short, prerecorded radio messages according to a media plan suited to the listening habits of the target group. The messages themselves are the product of close consultation with nutrition and health authorities, experts on the rural target areas, and informal interviews with the target group -- rural mothers of young children. As evaluation data indicated, the messages were revised midway during the campaign.

The impact of the messages was determined through interviews with the target group before the broadcasts began, at the end of 6 months, and at the close of the campaign. Health and other community workers also were interviewed, but on a nonrandom basis to determine their observations of the project's impact.

Figure 1 also serves as an outline for the following section on project design and development in the Philippines. Following that section, a description of the evaluation plan is included, and the findings of the experiment are presented.

The project strategy and evaluation findings for Nicaragua follow the same format.

The concluding section draws together insights about the application of the reach-and-frequency techniques of radio education to development programs, gathered from the programs in both countries.

PART ONE: THE PROJECT IN THE PHILIPPINES

I. PROJECT DESIGN AND DEVELOPMENT

A. PROJECT DEVELOPMENT

The experiment in the Philippines exemplified the application of the reach-and-frequency technique in a country with a strong nutrition improvement program, more aware than most of the use of radio for development goals.

Our work in the Philippines was facilitated by four important conditions:

- The National Nutrition Council (NNC) had already developed a list of priority themes for nutrition education.
- Nutrition Communication Office of National Media Production Center (NMPC) was our counterpart, providing essential assistance at every phase.
- Nutrition improvement programs had a high priority. Had the project not been an experiment restricted only to radio, existing nutrition programs would have provided a strong partner for the mass media component.
- The mass media are well-developed and cooperated with the government in the donation of radio time for the duration of project.

The development of the project moved quickly, following the steps outlined below.

1. SELECTING OBJECTIVES FOR A SPECIFIC TARGET GROUP

The criteria for theme selection, peculiar to this experiment, were the following:

Affect rural families

High national priority

Common to other developing countries

Common throughout the year

Amenable to solution by the target group families, with their own resources, without the provision of additional goods or services

A solution that is communicable with short radio messages, something that is not complex; *e.g.*, not how to dig a well or build a latrine

The late introduction of adequate supplemental foods was of highest priority of the National Nutrition Council for rural families. Nutritional effectiveness and acceptability trials had already been conducted on a combination of foods that would meet this problem: a mixture of rice porridge, well-cooked chopped and mashed fish and vegetables, and up to a teaspoon daily of cooking oil for calories.

After consultation with nutritionists in Manila and experts on rural life in the test area, Iloilo Province, this theme was tentatively selected, and the following behavioral objectives were formed:

- Increase the number of women who begin supplemental feeding by at least the sixth month of the infant's age; and

- Increase the number of women who add chopped fish, green vegetables, and cooking oil to the supplemental food (*lugaw*) and introduce it by the sixth month.

2. DRAFT AND PRODUCE MESSAGES

As a result of a series of meetings in Iloilo (the test area) with local education, social welfare, health and agricultural extension workers, representatives of the broadcasting industry and local university nutrition departments, preliminary scripts were modified to take into account several considerations:

- Introduction of the ingredients, especially cooking oil, might cause diarrhea;

- Cooking oil could be scarce in some areas adding to the cultural barriers to adoption;

- Mothers may not have the utensils to measure the ingredients of the enriched weaning food;

- There are strong beliefs against the introduction of these foods at an early age since most mothers believe that they will cause stomach upset.

Field investigation included observation and interviews of rural mothers, store owners, and rural workers, which provided information on the following topics:

Infant feeding habits;

Special purchase foods for infants;

Availability of enrichment ingredients in the home;

How and where these foods were obtained;

Availability of measuring utensils in the home;

Mothers' reaction to the idea of enriching the food of a 6-month-old baby with oil, fish, and vegetables;

Sources of advice about caring for infants;

Radio station preferences and listening schedules;

Prices and availability of enrichment ingredients in village markets.

Based on findings from these interviews and the reactions of nutritionists in Iloilo, the messages were modified in two ways.

First, information in any single message was reduced, and six different messages were written, each emphasizing a different aspect of the recommended way of infant feeding.

Second, the recommendation about adding oil was changed so that mothers without teaspoons would not add too much. Instead of saying "add a teaspoon," the messages were changed to "a little oil," "in drops," and "up to a teaspoon."

A final draft version of the six messages was prepared, translated, and produced in the next few days. Local radio personalities were used in the production, and the translation was checked with several people who were equally fluent in Ilonggo and English, and who also understood the rural culture to which the messages were directed.

Although these recordings were for test purposes only, each was edited to proper length, with all the other message elements in place. The "test" versions were as close to the contemplated "air" versions as possible.

3. *PREBROADCAST MESSAGE TESTING WITH THE TARGET GROUP*

The message is the most vital element in any mass media campaign, and testing with the target group is essential to assure its effectiveness.

Approximately 65 mothers were interviewed throughout the rural areas of Iloilo, using the same field research firm that later conducted the project evaluation interviews. The messages, as recorded, were played for the mother as part of an interview which included the following questions:

- Are the characters acceptable?
- Is the vocabulary understandable and appropriate?
- Are the important elements of the message memorable?
- Are the concepts plausible and immediately actionable?
- Are the motivational elements effective?
- Are there any violations of unassailable traditional beliefs?

No drastic changes in the messages were indicated by the tests, but the following refinements were made to focus the messages more sharply on the campaign objectives:

- Mothers were urged to feed breastmilk *and* the enriched lugaw. Some of the mothers thought that the lugaw would replace breastmilk.

- "Green" vegetables were specified as opposed to just "vegetables" which included squash or vegetable soup.

- A "drop of oil" was recommended instead of "a little" oil.

- Mothers were reassured that their infants would not get diarrhea from the oil if only a few drops – up to a teaspoon – are given.

4. DEVELOP MEDIA PLAN AND MONITORING SYSTEM

Media planning refers to the selection of participating stations, the hours and frequency at which the spots will be broadcast, and the duration of the campaign.

Information about the radio listening habits of the target families was found through interviews with station owners and marketing firms servicing the area, as well as from household surveys undertaken during message testing and evaluation. The audience and frequency with which they were exposed to the messages were increased by requesting the spots to be played at more popular hours.[1]

The National Media Production Center monitored the broadcasts of all the cooperating stations during the year. On the average, about one-third of the requested spots were broadcast. The station most popular with the target group, along with many others, reduced the frequency of broadcasts during the last months of the campaign.

This reduction in broadcast frequency affected, to an indeterminable extent, the rate of change of knowledge, attitude, and behavior. As shown in Section II.B below, there are no neat and certain relationships, but the drop in frequency contributed, along with other factors, to a flattening in the curve.

B. ANALYSIS OF THE MESSAGES

The messages are the most important part of the mass media campaign. The broadcast version is the product of careful field research, drafting, redrafting, testing with the target audience, and redrafting. An analysis of the messages used in the Philippine project is instructive, not because the messages should be used in campaigns in other countries, but because they reflect this process and the information gathered about the problem, the solution, the rural mothers, and their circumstances.

Six messages were written, each treating a different aspect of the same theme—some stressing the addition of cooking oil; others, adding fish or vegetables. The complete recipe was repeated in each message.[2]

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[1] Radio time was donated for the duration of the project through the National Media Production Center and the Philippine Broadcasters Association (KBP).

[2] See Appendix E for the text of one of the messages. A cassette of the messages is on file at Manoff International Inc., Washington, D. C., and AID/Washington, Office of Education and Human Resources.

The soap opera format, already popular in the Philippines, offers an opportunity to present and resolve conflict, such as that prompted by the introduction of an innovation. The traditional character roles were reversed, using an innovative mother and a traditional daughter. Had the conventional roles been used, the old customs might have been reinforced by arousing feelings of hostility toward the daughter for opposing her mother.

The new situation is given credibility when the grandmother confesses that she heard of this new idea, enriching lugaw, from the "doctor on the radio." She invites the daughter to hear it for herself — which means, for the radio audience to hear it for themselves, as well.

Confronted with her mother's new behavior, the daughter is incredulous, reflecting the attitude of the radio audience as they wonder what is happening to the old woman. This is preferred to the alternative in which hostility toward the young mother would have been aroused for opposing her mother so disrespectfully (and in a 60-second minidrama mere brevity alone would have assured a curt and disrespectful reply), and for coming up with an outlandish "modern" idea that is "not the custom."

Although the old mother might be considered crazy, her actions and advice are redeemed by the words of the "doctor on the radio." The doctor's intervention provides additional benefits: the old woman is associated with modernity; old people can also keep learning new ideas; the doctor lends authority to the radio, particularly as used in this project; and, finally, it helps reinforce the authority of doctors and the health centers where they are found.

The conflict aroused is resolved by the doctor, upon whom the audience's attention is focused. He holds the key. At this turning point, drama is used not merely for interest or convenience but to underscore the point of the message, which is to tell mothers which foods to give young babies, how to prepare them, and that they can be digested.

The conflict between Lita and her mother must be resolved in favor of the mother since she is the sponsor of the new idea, but to be credible, Lita asks her mother: "But mama, why didn't you feed me this way when I was a baby?" Lita believes the doctor, but does not understand why her mother is changing now, after all these years.

The most believable way, considering the circumstance of the "doctor on the radio," is to tell Lita, "How could I know? I didn't even own a radio. Times change. You live and learn."

Her explanation is plausible, and understandable for the audience, affirming the new knowledge.

There is one other task: to relieve the audience of any sense of guilt about changing from the old customs to the new ways. Thus, Lita says, "You must be sad that the old ways are changing," provoking audience sympathy for her mother, but at the same time conceding that the new advice is sound and acceptable.

The old woman's response must be carefully thought out, to show that she has done what any sensible person would do under the circumstances. She is not really so eager to see change, nor would it be credible if she were. Her answer is, "Not all the old ways are changing. But only a fool remains with the old way when the new way is better."

II. PROJECT EVALUATION IN THE PHILIPPINES: DESIGN AND FINDINGS

A. RESEARCH DESIGN

1. SUMMARY

The impact of the messages on knowledge, attitude, and methods of feeding infants 6-12 months of age was evaluated through household interviews before, during, and at the close of 12 months of broadcast. Interviews were conducted in the test area and in a geographically separate, but similar control area. The findings of these interviews are projectable to all rural families in the test area with children under one year of age. In addition, interviews were conducted with representatives of community workers — doctors, nurses, rural school teachers, etc.

2. METHODS

Figure 2 shows the experimental design used.

FIGURE 2

PROJECT STRATEGY

IMPACT STUDY – EXPERIMENTAL DESIGN

- Determine evaluation tool
- Select sample – test and control
- Design and test questionnaire
- Conduct interviews

Household Interviews	Interviews of Doctors, Nurses, Community Workers
Baseline Survey (Wave I)	
Data Analysis	
(BEGIN BROADCAST OF MESSAGES)	
After 6 months (Wave II)	
Data Analysis	
After 12 months (Wave III)	
(END BROADCAST OF MESSAGES)	

- Data Analysis

After consultation with nutrition, marketing, and survey specialists, rural Iloilo Province and southern portions of Cebu Province were selected as test and control, respectively.

Families in Iloilo and Cebu were generally similar: mostly farmers living in small villages, without electricity or running water, 48% of whom owned working radios, feeding their infants similar diets – breastmilk and starchy gruels during the first 12 months; and participation in and knowledge of health and nutrition programs were generally the same.

Two differences were notable: 72% of the test group mothers had some education compared with 52% of the control mothers, and control more than test families tended to feed their infants more of the enrichment ingredients – fish, vegetables, and fried foods.

Figure 3 describes the sampling plan in the Philippines.

FIGURE 3

SAMPLE PLAN IN THE PHILIPPINES

	WAVE I *Baseline Study*	WAVE II *After 6 Months of Broadcast*	WAVE III *After 12 Months of Broadcast*
Sample Size	1,000 completed interviews	960 completed interviews	951 completed interviews
Test Area	700	674 (175 from the base study)	660 (166 from the base study or Wave II)
Control Area	300	296 (99 from the base study)	291 (76 from the base study or Wave II)
Community Workers (Test Area Only)	99	130	99

From a list of all municipalities in the test area, a random sample of 14 were chosen from which all those close to the provincial capital were excluded. From the remaining, 70 barrios or barangays were selected randomly. In each barrio 10 respondents were chosen.

Households in the control area were selected in the same way, except that municipalities with special nutrition and health programs were excluded as were those from Northern Cebu because they are socio-economically different from the test area.

Qualified respondents were women who were 30 years or younger, or any age and pregnant, or any age and mother of a child 12 months old or younger.

In the second and third waves of interviews a portion of the households interviewed in the preceding wave were reinterviewed, creating a panel. Because of social and political conditions, interviewers could not ask for identification numbers, reducing the meaningfulness of the panel in the analysis of findings.

The interview instrument was designed by Manoff International Inc. with the assistance of Consumer Pulse, Inc., the field interview firm, and approved by the National Nutrition Council. The questionnaire was identical for the first two waves of interviews, while in the third wave, at the close of broadcasting, additional questions were added so that the respondents' participation in and knowledge of health and nutrition assistance programs could be more fully determined.[3]

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[3] An edited English version of the questionnaire used in Wave III is found in Appendix A.

Of the 82 questions, 35 were open or unaided, allowing the mother to respond freely with no prompting from the interviewer.

Self-reported behavior changes rather than those verified by observation, anthropometric measures, or clinical records were used because of their lower cost. Household interviews reflect the extensive geographical coverage of radio, rather than the more limited catchment areas of health clinics. While there is some danger in using the testimony of the mothers themselves, the independent observations of the community workers and the structure of the questionnaire are checks against exaggerated claims of acceptance.

Self-administered questionnaires were distributed to rural community workers at the same time household interviews were conducted. Their responses, while not projectable because of their nonrandom selection, are indicative of changes in behavior, attitudes, and knowledge.

Consumer Pulse, Inc., a Manila-based marketing research firm, provided field interview, coding, and keypunching services for the message testing, and household and community worker evaluation interviews. Manoff International Inc. and NMPC staff supervised each of the evaluations.

B. FINDINGS

1. SUMMARY OF FINDINGS

As a result of the radio education campaign in Iloilo, significant changes in attitude and knowledge were recorded at the end of the first 6 months of broadcasting. Mothers also reported that they had begun to enrich their infants' rice porridge with the recommended ingredients: cooking oil, fish, and vegetables. These changes remained the same or increased slightly during the last 6 months of the campaign.

Because behavior change is the most important aspect of the project, we have been careful to include as adopters[4] only those mothers

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[4] Adoption is used in this study to include those mothers who report that they usually give their 6-12 month old infants rice porridge mixed with one or more of the ingredients recommended in the messages. To be considered an adopter, the mother must have been able to demonstrate to the interviewer how the mixture was prepared and to describe the amount and frequency with which it was given to her infant. The adopters may include some mothers who prepared the new food only a few times and may be considered "trial users," instead of habitual users. However, the data show little dissatisfaction with the food among those who claim that they use it, suggesting that one time or trial use is at a minimum.

with infants between 6-12 months of age and who could demonstrate accurately how they prepared the lugaw. Independent observations of community workers tend to support the conclusions drawn from the household interviews.

2. MESSAGE RECALL

By the end of the campaign, 57% of the mothers could recall without prompting that the messages recommended oil for the baby's food, an increase of 18% over the recall of this element in Wave II (after 6 months) (see Table 1). Other parts of the messages show similar increases in recall during the last 6 months of the project. Recall of oil is particularly encouraging since education about the benefits of oil and persuading the mothers to add it were the highest priority objectives of the project. Complex instructions such as how to prepare salted fish for the infant received less emphasis in the messages and were recalled by few respondents.

TABLE 1

MENTIONS OF MESSAGE ELEMENTS, EXPRESSED AS A PERCENTAGE OF TOTAL RESPONDENTS, COMPARING WAVE II AND WAVE III OF THE TEST GROUP

	WAVE III *(N = 660)*	WAVE II *(N = 674)*
Complete Recipe	18%	13%
Oil Mentions	57%	39%
Vegetable Mentions	50%	37%
Fish Mentions	40%	15%
Child Should Be Fed Lugaw at 6 Months to 1 Year	17%	16%
Correct Quantity of Oil	8%	18%

The experience in Nicaragua and the Phillipines suggests that the concepts of measuring ingredients and serving food or medicine according to the schedule are difficult to communicate to a target group for whom measurement and schedules have less significance. These concepts require special emphasis.

3. *ATTITUDE CHANGE*

Interviews with Mothers

Positive attitudes toward all of the enrichment ingredients increased during the course of the project. The change of attitude about adding oil, the highest priority, was particularly dramatic.

Mothers who had heard of adding oil, fish, or vegetables to infants' lugaw were asked what they thought of this recommendation. The table below shows the shift in positive attitude during the 12-month project:

TABLE 2

ATTITUDE CHANGE: EXPRESSED AS A PERCENTAGE OF TOTAL RESPONDENTS

ATTITUDE CHANGE ITEMS	TEST			CONTROL		
	WAVE III	WAVE II	WAVE I	WAVE III	WAVE II	WAVE I
N =	*(660)*	*(674)*	*(700)*	*(291)*	*(296)*	*(300)*
Oil is good	74%	74%*	15%	28%	26%	29%
Fish is good	81%	80%*	48%	48%	54%	56%
Vegetables are good	79%	82%*	49%	72%	81%	76%

* p = 0.05

Mothers who had positive attitudes toward more than one of the ingredients also increased (not shown), but beginning and ending at lower levels than for single ingredients.

The 59% change in attitude about oil is especially important since it was the most novel ingredient and the one about which mothers had the strongest negative feeling. It is also important in demonstrating the effectiveness of short radio messages to reach far and wide in a rural area. The radio messages were the only source of information about the benefits of oil during the test period, although their recommendations may have been repeated and reinforced by doctors, teachers, neighbors, and others. Vegetables and fish, on the other hand, have been promoted for years by educators and are a far more acceptable part of the food culture of rural families.

Between Wave II and Wave III, a period of 6 months, attitude change did not take place. This leveling off may be attributed to the

decline in the frequency with which the messages were broadcast during the last months of the project, or to message fatigue. It is more likely, however, that in the first 6 months of broadcasting the most easily convinced were converted by the messages, and the remainder are more intractable.

In either case, continual broadcasting and a redesign of the messages is recommended to deal with some of the continuing points of resistance to change.

4. *KNOWLEDGE CHANGE*

The messages were more successful in decreasing the wrong concepts that mothers held about the ingredients than they were in informing them of positive reasons why the foods should be given to their infants. Increasing knowledge about the right age to begin feeding an infant different foods was not an objective of the campaign, but later analysis showed that this was most significantly associated with behavior change.

a. Value of Enrichment Ingredients

The following table gives the frequencies of the reasons most commonly cited by mothers for believing oil in lugaw is good for the baby.

TABLE 3

KNOWLEDGE ABOUT ADDING OIL TO LUGAW EXPRESSED AS A PERCENTAGE OF TOTAL RESPONDENTS

	TEST			CONTROL		
	WAVE III	WAVE II	WAVE I	WAVE III	WAVE II	WAVE I
N =	*(660)*	*(674)*	*(700)*	*(291)*	*(296)*	*(300)*
Correct Answers						
Makes baby fatter	15%	18%	3%	6%	3%	4%
Makes baby livelier	22%	26%	4%	3%	-	4%
Gives heat and energy	3%	1%	1%	1%	-	-
Incorrect Answers						
Causes loose bowels	6%	12%	48%	48%	48%	29%
Causes stomach upset	6%	6%	36%	10%	15%	19%

The lower portion of the table shows the declining number of test respondents who give incorrect answers for not adding oil to lugaw. Note that wrong answers increase for the control group.

Changes in knowledge about vegetables and fish (not shown) were not as sharp as for learning about oil, but the messages did not concentrate as much on fish and vegetables as they did on oil. The decline in the belief that fish causes worms may be considered a direct result of the favorable positioning of fish in the messages although there was no specific reference to this idea.

TABLE 4

KNOWLEDGE ABOUT ADDING FISH TO LUGAW EXPRESSED AS A PERCENTAGE OF TOTAL RESPONDENTS

	TEST			CONTROL		
	WAVE III	WAVE II	WAVE I	WAVE III	WAVE II	WAVE I
N =	*(660)*	*(674)*	*(700)*	*(291)*	*(296)*	*(300)*
Correct Answers						
Makes baby strong	15%	15%	6%	7%	3%	3%
Helps growth	3%	7%	5%	2%	2%	3%
Incorrect Answers						
Causes worms	13%	14%	32%	40%	33%	28%
Causes indigestion	2%	1%	8%	3%	3%	3%

b. Right Age to Introduce New Foods to the Infant

There was a general shift toward knowing the more correct age (5 to 7 months) over the course of the campaign. Fewer mothers in Waves II and III than in the benchmark said that they would never feed these foods to a child or said that they would wait until the first birthday. This lack of significant change is not surprising since this information was not stressed in the messages. The analysis of factors showed that knowledge about the correct age to introduce new foods is strongly associated with behavior change. This suggests that the belief that infants cannot eat even specially prepared adult foods must be dealt with more directly and forcefully in new campaigns.

5. BEHAVIOR CHANGE

a. Summary

During the 12 months that the messages were broadcast in Iloilo, substantial numbers of mothers began feeding their infants lugaw enriched with oil, fish, and vegetables. In the control area, during the same period, no change was recorded.

The levels of behavior change, *i.e.*, the amount and frequency with which the foods were added to the lugaw, and the nutritional value of these additions have been calculated. By Wave III, 12% (N = 136) of the mothers with infants between 6-12 months said that they were adding both fish and cooking oil. This new behavior may have added as much as 5%-7% of the daily caloric needs of the infants in these families. On the average, families that gave their infant only oil in the lugaw may have provided about 2% of the daily caloric requirements through this new practice. This may seem to be a small gain. However, even if mothers would have given one teaspoon of oil — the maximum recommended — every day, only 7% of average daily caloric needs would have been satisfied.

b. Measurement

This study, no less than many others, encountered difficulties in the interpretation of data about behavior change and adoption. Since the reports of the mothers were the principal source of information about behavior change, there is the danger that some portion of those claiming to adopt had either only tried the recommendation once or were reporting what they felt the interviewers wanted to hear.

The interview method, the sequence of questions, and survey of community health workers were designed to cross-check against exaggerated reports of adoption. For example, mothers who claimed they were enriching the porridge were asked to show how they prepared it, using a bowl, cups, and spoons that the interviewers carried with them. In addition, they were asked to tell the amount and frequency with which they added each of these ingredients. They were asked the amount and frequency of oil purchases and, most importantly, they were asked to show the interviewer the oil they had in the house.

The interviews of doctors and other community workers provide another perspective about changes in the rural families. While these data are not projectable to the entire province, they are rough indicators of what happened in the rural homes. (Findings from this aspect of the study are presented on pages 31-32.)

c. Findings

(1) Incidence of enrichment of lugaw

After exposure to the messages, mothers of infants 6-12 months of age in the experimental area reported higher levels of behavior change than before the campaign, or than reported by mothers in the control area.

TABLE 5

INCIDENCE OF ENRICHING LUGAW WITH OIL EXPRESSED AS A PERCENTAGE OF MOTHERS WITH INFANTS 6-12 MONTHS OF AGE

	TEST			CONTROL		
	WAVE III	WAVE II	WAVE I	WAVE III	WAVE II	WAVE I
N =	*(136)*	*(142)*	*(157)*	*(58)*	*(61)*	*(58)*
Add Oil	24%	23%*	0.00	12%	13%	12%

* p = 0.05

The number of mothers who report that they usually add oil to the lugaw sharply increases in the first 6 months of the test. The amount and frequency with which it was added varied widely, from a few drops once or twice per week to a teaspoon daily. (A more detailed analysis of the amount and frequency of enrichment is found on pages 23-25.) During the second 6 months of the project, the incidence of behavior change was maintained.

An important factor in behavior change is the family custom of consuming edible oils. In a separate question we found that 41% of all respondents had oil in their homes, and even in the oil-adopting families, only 46% had oil at the time of the interview. Although nearly all respondents said that they use oil in cooking, apparently its expense, availability, and relatively modest use in recipes combine to keep purchases small and infrequent. These are formidable barriers for the radio messages to overcome for many families.

Enrichment of lugaw with both fish and vegetables increased significantly during the first 6 months, but leveled off during the remainder of the experiment. However, some of the mothers were accustomed to giving these foods before the project began.

Adding more than one ingredient, as expected, occurred at a lower rate than any single item, and the complete recipe was accepted by the fewest number.

TABLE 6

BEHAVIOR CHANGE: MOTHERS WITH INFANTS 6-12 MONTHS OF AGE*

	WAVE III *AFTER 12 MONTHS* *(N = 136)*	WAVE II *AFTER 6 MONTHS* *(N = 142)*	WAVE I *BEFORE BROADCAST* *(N = 157)*
Add fish	27.1%	26.8%**	16.7%
Add vegetables	16.9%**	13.3%	5.0%
Add fish and oil	13.0%	13.0%**	0.0%
Add fish and vegetables	14.0%	11.0%**	2.0%
Add vegetables and oil	10.0%	8.0%**	0.0%
Add fish, vegetables, and oil	8.0%	8.0%**	0.0%

* Since the control group did not show any increase in behavior change during the experiment, findings from those surveys are not included in succeeding tables.

** $p \leq 0.05$

(a) Amount and frequency with which enrichment ingredients were added

In order to compare the amounts and frequencies of enrichment from wave to wave, an index of values was created. The index shows the average amounts and frequencies for all mothers enriching the lugaw. The perfect score for each ingredient (4.0) indicates that all mothers with infants 6-12 months of age are adding a teaspoon of oil once to three times daily; or one tablespoon of fish, one to three times daily; or a tablespoon of vegetables three to five times per week. Table 7 shows the comparison of averages between Waves I and III.

TABLE 7

BEHAVIOR CHANGE: AVERAGE INDEX SCORES — MOTHERS WITH INFANTS 6-12 MONTHS OF AGE

	MEAN SCORE	
	WAVE III *(N = 136)*	WAVE I *(N = 157)*
Add oil	0.23*	0.0
Add fish	0.20*	0.04
Add vegetables	0.29*	0.03

* $p \leq 0.04$

By the end of 12 months all three ingredients were being added *on the average* in significantly greater quantities and served *on the average* with significantly greater frequency than before the test began. Some of the mothers may have been adding enrichment foods in such small amounts and in such low frequency so as to be nutritionally insignificant. However, their intermittent and trial use may be precursors of more generous enrichment in the future. These findings support the recommendations to continue broadcasts.

Since adding oil has the highest priority, it is used as an example of behavior change, illustrated with the array of amounts and frequencies in Waves II and III, found in Table 8, parts A and B, below.

TABLE 8

AMOUNTS AND FREQUENCIES OF ADDING OIL TO LUGAW:
MOTHERS HAVING INFANTS 6-12 MONTHS OF AGE

	TOTAL	3x Day	1x Day	5-6x Week	4x Week	3x Week	2x Week	1x Month	2x Month
A. WAVE II (N = 157)									
<¼t	5	-	1	-	2	1	1	-	-
¼t	3	-	1	-	-	-	1	1	-
½t	8	1	1	-	1	2	2	1	-
1t	11	-	1	-	4	4	1	-	1
1T	5	-	1	1	1	1	1	-	-
Total Adopters	32								
Adopters/ Frequency		1	5	1	8	8	6	2	1
B. WAVE III (N = 136)									
<¼t	10	-	-	-	-	3	1	4	2
¼t	10	-	-	-	-	2	4	3	1
½t	5	-	1	-	1	1	2	-	-
1t	6	1	-	1	-	2	2	-	-
1T	1	-	-	-	-	1	-	-	-
Total Adopters	32								
Adopters/ Frequency		1	1	1	1	9	9	7	3

This display leads us to a better understanding of the nature and extent of behavior change. In Wave II, the largest number of mothers (8) are giving oil two to three times weekly, while five are giving oil daily in amounts varying from a few drops to a teaspoon, as specified in the radio messages.

The infants receiving the tablespoon daily are either nearly one year old or the mother is exaggerating. Those giving it two or three times per month have learned only part of the lesson from the message.

By Wave III, important changes have taken place. There are fewer of the mothers giving too much (one tablespoon) or adding the oil infrequently. The constant repetition of the messages, trial and error, and consultation with neighbors and community workers may have brought them closer to the goals of the messages. Eighteen of the 32 mothers have maintained the same frequency, two to three times per week, though they appear to give the oil in smaller amounts.

(b) Verification of behavior change

Self-reported adoption of a new behavior allows the respondents to exaggerate or to tell what they think is the correct answer, rather than what they actually are doing. Data about the availability of cooking oil in the home and the frequency of its purchase tend to support the view that the mothers added oil as reported for the few days that their weekly purchases lasted. Other confirming data about the incidence of behavior change are found in the results of the survey of community workers, found on pages 30-31.

Interviewers asked *all* mothers to show them the containers in which they stored cooking oil. We found that 41% of all sample families had cooking oil at the time of the interview, compared with 46% of those claiming to add oil. This figure compares with 50% in the Zeitlin and Formacion[5] study.

Even though more than one-half of the adopters did not have oil in their homes, this is more a reflection of the frequency with which they purchase oil than it is proof that they are misleading the interviewers.

Before the broadcasts began, 46% of all respondents reported that they purchased oil weekly. This increased to 67% by the end of the project. Those who added oil to the lugaw follow a similar pattern, with 71% buying oil weekly by the end of the project.

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[5] Marion F. Zeitlin and Candelaria Formacion. "The HIID/U.P. College, Iloilo, Evaluation of the Manoff International, Inc., Nutrition Education Radio Advertising Campaign in Iloilo, Philippines, October, 1975-October 1976," no date, p. 14.

Since interviews were conducted throughout the week, not just on the market day or immediately thereafter, it is likely that many mothers had exhausted their supply by the time of the interview. If we return to Table 8, parts A and B, the frequency with which oil is given suggests that mothers are adding oil during the first days after purchase, until the supply runs out.

This interpretation supports the finding that many mothers regularly enrich the lugaw with oil as long as there is oil in the house, resulting for most in a two or three-day period of enrichment.

(2) Breastfeeding

A secondary objective of this project has been to insure that the mothers who began enriching their infants' lugaw would continue breastfeeding instead of perceiving this new food as a substitute.

Analysis of diet recall data showed that there was no significant difference in the habits of breastfeeding between the mothers who reported that they enriched the rice porridge and those that did not. On the average, 85% of all mothers in the target group nurse their 6-12 month old infants.

(3) Characteristics of the Adopters

(a) Socioeconomic indicators

The target group of the project was low-income rural families with infants. With fewer than a dozen exceptions, all the families interviewed fell into the fourth class of a four-part socioeconomic classification system commonly used by market researchers in the Philippines. Within this broad class, the mothers who enrich tended to be on the higher end of the scale by a number of measures.

TABLE 9

RELATIONSHIPS BETWEEN ENRICHMENT AND INDICATORS OF AFFLUENCE: WAVES II AND III COMBINED

(N = 273)

	Own Working Radio	*Frequent Listener*	*Education of Mother*	*Education of Father*	*Electricity in House*	*Water in House*
Add oil	+0.21	+0.15	-	-	-	+0.16
Add fish	+0.18	+0.21	-	-	+0.10	+0.14
Add vegetables	+0.15	+0.14	-	+0.14	+0.10	-

Because of the generally unreliable nature of self-reported family income data, correlations were not calculated. On visual inspection of these data comparing the total sample with the mothers who enrich the lugaw, there seems to be a slight tendency of the more affluent (weekly income: Pesos 40-50) to have adopted.

(b) Knowledge and attitude change variables

Mothers who changed feeding practices tended to have scored well on indexes for knowledge and attitude change. The relationships between behavior change and positive attitudes are shown below.

TABLE 10

RELATIONSHIP BETWEEN POSITIVE ATTITUDES AND BEHAVIOR CHANGE: TEST AREA ONLY, WAVES II AND III COMBINED

BEHAVIOR CHANGE	*ATTITUDE*	*N =*	*COEFFICIENT*	*p =*
Oil	Oil	195	+0.1205	0.047
Fish	Fish	179	+0.085	0.127
Vegetable	Vegetable	186	+0.098	0.090
Oil, Fish	Oil, Fish	157	+0.1857	0.010
Oil, Vegetable	Oil, Vegetable	165	+0.1620	0.019
Fish, Vegetable	Fish, Vegetable	156	+0.1379	0.043
Add all	All attitudes	145	+0.1423	0.04

Changes in knowledge were more strongly associated with behavior change, particularly knowledge about the right age at which fish, vegetables, and fried foods can be introduced, as found in Table 11.

TABLE 11

RELATIONSHIP BETWEEN KNOWLEDGE OF AGE TO INTRODUCE NEW FOODS AND INGREDIENTS AND BEHAVIOR CHANGE: TEST AREA ONLY — WAVES II AND III COMBINED *(N = 278)**

BEHAVIOR CHANGE	*KNOWLEDGE* =	*INGREDIENTS* +	*AGE*
	r =	*r =*	*r =*
Add fish	0.39	0.15	0.38
Add vegetables	0.27	0.17	0.26
Add oil	0.38	0.17	0.37
Add fish and oil	0.36	0.15	0.36
Add vegetables and oil	0.29	0.15	0.29
Add fish and vegetables	NA	NA	NA
Add all ingredients	0.31	0.11	0.31

* All figures significant at p = 0.05

(c) Sources of information about child feeding

Radio was mentioned by only 3%-4% of the respondents as a source of information about child care. No significant relationships were found between behavior change and those who mentioned the radio as a source of information for general child care.

However, when mothers were asked where they had heard advice about enriching lugaw, they overwhelmingly cited radio as the source of information. Responses to this question were correlated to the behavior change variables, as shown in the following table.

TABLE 12

RELATIONSHIP BETWEEN RADIO AS THE SOURCE OF ENRICHMENT RECOMMENDATIONS AND BEHAVIOR CHANGE: TEST AREA ONLY — WAVES II AND III COMBINED *(N = 278)*

BEHAVIOR CHANGE	*p =*	*COEFFICIENT*
Add fish	0.02	0.2265
Add vegetables	0.02	0.1278
Add oil	0.02	0.2902

Enrichment with oil, the most novel recommendation of the messages, understandably is most strongly associated with the radio messages. Promotion of fish and vegetable consumption for infants had preceded the radio campaign by several years.[5]

(d) Participation in health and nutrition programs

Participation in existing programs was positively associated with the enrichment with fish and vegetables, but there was no positive relationship between reported participation and the enrichment with oil. This supports the assertion in the preceding paragraph that fish and vegetables have been promoted through other programs, but oil consumption by infants has been an innovation of the radio messages.

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[6] A positive relationship was found by Dr. Zeitlin and Ms. Formacion when they correlated enrichment with oil and mothers who cited sources in addition to radio. This suggests the importance of reinforcing, where feasible, the radio message with other sources of information. However, since many of the sources cited by mothers were neighbors and friends, it does not necessarily follow that radio programs must be supplemented by other education programs.

(4) Impact on protein and caloric intake of adopting families

(a) The potential

The ultimate purpose of nutrition education is to solve or ameliorate malnutrition among the target population. If mothers added the maximum amount of oil recommended and one tablespoon of fish, they could have provided approximately 12%-13% of the caloric requirements of an infant 6-12 months of age: 80 calories per teaspoon of cooking oil and 57 calories from one tablespoon of fish given daily.

Since the caloric deficit among rural infants in Iloilo averaged 50 calories per day, with 52% having a deficit of 134 calories and 16% with a deficit exceeding 400 calories, it is likely that maximum oil and fish enrichment by all mothers would have satisfied the caloric needs of only the marginally malnourished.[7] The more severely lacking in calories would have gained an important part of the deficit. However, the evaluation could not ascertain if the mothers who claimed to have enriched the lugaw had the infants most in need.

Given the reported amounts and frequencies of enriching the lugaw with fish and cooking oil, it is doubtful that in the short time that most of the infants had been receiving these additional calories discernable weight gains could be detected. Dr. Zeitlin and Ms. Formacion's study of adopting families confirms this.

The potential for adoption and hence nutrition impact would have been enhanced if the messages had urged mothers to add the oil, fish, and vegetables to the other starchy foods given to infants, since lugaw is actually given less frequently than we originally estimated.

These findings about the potential nutrition impact strengthen the case for continuing the mass media education. In contrast with rehabilitative feeding in which compensating diets are prescribed, the education approach assumes that mothers will gradually adopt the recommendations. Initially, however, only a few will accept the entire recommendation. To realize the full potential of the new behavior, the education program must continue persuading new mothers to adopt and others to persist. Since the additions to the infant's food intake are incremental, nutritional status changes will be realized for most children only after several months of continual adoption.

(b) Actual calories gained

Approximately 23% of the mothers reported adding oil to their baby's lugaw. With the amounts and frequency they used, the adopters

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[7] Data on the caloric deficit among the rural infants in Iloilo have been taken from Zeitlin and Formacion, p. 45.

satisfied on the average approximately 27% of the caloric potential of the message recommendation (80 calories per day).[8] This is approximately 2% of the child's daily caloric requirement.[9]

The calories *added* per day from fish as a result of the behavior change are about the same as those added from oil. Even though fish is less dense in calories, families are accustomed to giving larger amounts to their children. Of the families who added fish (27% of the total), the fish satisfied 2.4% of daily caloric requirements.

Projecting the findings to the rural population of infants 6-12 months old, there are 1,550 infants who may have received both fish and oil who had not received them before. The infants may have gained up to 4% or 5% of daily caloric needs.

(c) Actual protein gained

Before the program, 17% of the families added fish to lugaw, satisfying about 9% of their infant's daily protein requirement with the added fish. After the program, the percentage of protein requirements satisfied by the added fish may have risen to 16% for children of adopting mothers, providing an additional 7% of daily protein requirements.[10]

(5) Impact of program

One of the most significant advantages of the reach-and-frequency approach to mass media education is that it reaches farther and faster with its messages. As the data presented above have shown, a large measure of the gains in knowledge, attitude, and behavior changes was realized within the first 6 months of the program. This was accomplished in a predominantly rural province about the size of the State of Delaware, 2,000 square miles.

Based on the findings from the sample survey and assuming that these are representative of all rural families in the target group, the messages were heard and remembered by 74% of the target group, between 32,000-38,000 families. The widespread recall of the message is closely matched by the projections of 30,580 mothers who changed their minds about the value of oil, followed by those who came to believe fish and vegetables were good for a young infant. The knowledge increases affected fewer households, but in each, key changes were realized. Using these

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[8] Of the 32 mothers who enrich with oil, 4 are realizing from 50%-100% of the potential, but most are realizing from 5%-40% of the nutritional potential.

[9] Assuming 1,100 calories is the daily requirement.

[10] A 6 to 12 month old infant weighing 11 kg requires about 20 grams of high-quality protein daily.

same projections, more than 11,000 mothers began to understand why oil is good and could articulate one or more of the reasons given in the message. Knowledge gains were also made for fish and vegetables. Of special importance is that large numbers of mothers, about 4,000 in the case of oil, were disabused of false ideas about the foods. These gains set the stage for changes in behavior.

Behavior change has been projected only to those families with infants between 6-12 months of age, even though data support changes by mothers of infants 4-5 months old, and Zeitlin and Formacion showed changes among 12-15 month old infants.

Enrichment with oil was the paramount objective of the National Nutrition Council. Of the approximately 11,960 households with infants of this target age, oil may have been added by 2,750 alone or in combination with other ingredients, whereas none of the families in the benchmark study were adding it. This represents 23% of the target population.

Projections show that fish was added by more families, largely because fish is not such a strange ingredient in the child's lugaw. By the end of Wave III, an additional 1,196 mothers were giving fish alone or in combination with other ingredients. Vegetables were added by the fewest mothers, about 13%, or 1,550 households. Slightly less than 1,000 families (8% of the total 11,960 target group families) reported that they were regularly enriching their infant's lugaw with all of the ingredients.

(6) Interviews of doctors and community workers

The data from interviews of rural community workers support the findings from household interviews and illustrate the effects of the messages on the workers themselves. At Wave I only 4% (N = 99) of the community workers reported that any mothers were adding oil to their babies' lugaw. By Wave II, 54% (N = 130) reported mothers were adding it, increasing to 56% (N = 162) by Wave III. Of those who had noted this practice in Wave II, one-third said that between 11% and 40% of the mothers in their communities were adding oil. The reported incidence in Wave III was about the same.

The amount of oil given by the mothers continued to increase, reported the community workers. By the end of Wave III, 15% said that one teaspoon was being given in a bowl of lugaw, compared with 11% and 3% in Waves II and I, respectively. In all, 48% of all the community workers by Wave III indicated that mothers were giving oil in the quantities as specified in the messages: "drops up to a teaspoon."

The informants also reported increases in the incidence of giving fish and vegetables in their communities. However, in Wave I

more than half of the workers reported that mothers already put these ingredients in their babies' lugaw. By Wave III more workers reported that larger percentages of mothers were giving fish and vegetables, but amounts added appear to have remained about the same.

The community workers also reported that their own knowledge and attitudes toward the enrichment of lugaw had changed over the experimental period. In Wave I, 42% felt that added oil would be good for a 6-month-old baby, compared with 84% by Wave III. Although many more (85%) felt at the outset that fish and vegetables would be good for a young infant, the proportion had increased to 92% by Wave III.

Knowledge changes followed similar patterns. In Wave I, 36% said that oil was good because it added calories and made lugaw more nutritious. By Wave II, this had increased to 58%, and by Wave III, to 68%. The community workers, like the mothers, started the project with more widespread and accurate information about the value of fish and vegetables than about cooking oil.

By Wave II, community workers cited radio as the most important source of information about enrichment of lugaw, supplanting traditional sources such as reading, lectures, and seminars. However, other factors may have contributed to the changes.

As the broadcasts began, a letter was sent from the National Nutrition Council and the Governor of Iloilo to each of the community workers, explaining the purpose of the campaign. While some of the changes in attitude and knowledge may be attributable to that letter, it probably only served to call the radio announcements to their attention. A more interesting potential interaction is among the explanation in the letter, the food recommended in the messages, and the tag lines telling the mothers to seek more advice on child care from the community workers. This recognition through the mass media of the importance of the community workers may have made them more receptive to the recommendations. (A copy of this letter is found in Appendix D.)

(7) Recommendations for Changes

The foregoing analysis of the impact of the project suggests some ways that future campaigns in the Philippines could be changed to increase their effectiveness. Aside from integrating the short radio messages with on-the-ground education and service programs, which will be treated in more detail in the closing section of the report, the messages themselves could be changed. These changes reflect a better understanding of the real and perceived constraints to adoption.

Zeitlin and Formacion pointed out that lugaw may not be given daily to infants in the target age, but instead they are fed watered down versions of adult foods. By recommending more strongly

than was done in the original messages that the enrichment ingredients be added to all the foods given to infants, the likelihood that they would receive them would be increased.

The frequency with which the oil should be added can be more strongly emphasized. The experiment's messages mentioned "every day" four times in total, but apparently this was not enough to overcome the resistance to giving it more often. This recommendation does not ignore the severe constraint imposed by the high cost and relative unavailability of cooking oil.

Mothers should be taught that the oil for a child is the same oil they normally buy for their families, rather than a special oil, as reported by some of the interviewers. Since Wesson Oil and other highly refined or imported oils are scarce and costly, this is an important element of resistance.

The messages also ought to persuade the mothers to set aside some portion of the family's oil supply especially for the infant since it appears that many of those who want to give it regularly cannot do so since the supply is exhausted in the first few days after purchase.

From the experiment in Nicaragua and the Philippines, it is clear that radio messages and other instruction about preparation of foods ought to be as exact as possible. Little doubt should be left in the mother's mind about the best way to prepare the new food or medicine.

C. PROJECT COSTS

Since this has been an experiment, total costs for the project exceeded those that could be expected for projects in the context of regular nutrition education programming. Approximately 75% of the costs for evaluation and 20% for the management by Philippine authorities may be attributed to the experimental nature of this project. Based on the experience of Manoff International Inc. in other countries where conditions have not been as favorable for design and implementation, costs for a nonexperimental project covering several themes is contrasted, in the table below, with the actual costs for the Philippine experiment.

TABLE 13

ACTUAL PROJECT COSTS AND ESTIMATES FOR A NONEXPERIMENTAL PROJECT

	ACTUAL COSTS	NONEXPERIMENTAL COSTS
Project Design and Development (Technical assistance, message testing, travel, per diem, etc.)	$15,750	$20,000
Project Evaluation (Technical assistance, data collection, processing, analysis, report preparation)	46,250	11,150
Media Time	4,850	10,000
Management by Philippine Government (Salaries, travel)	10,100	8,600
TOTAL COSTS	*$76,950*	*$49,750*

These costs can be compared to the projected numbers of families reached in the experimental project. For example, using the full experimental costs, $2.50 was required to bring about a change in attitude about adding oil for each of 30,580 mothers. Enrichment with oil by 2,750 mothers required $27.00 each. If the nonexperimental costs are used, the costs for attitude change about oil is reduced to $1.60 for each family and adoption of oil costs about $18.00.

These cost comparisions do not tell the whole story because the families benefited in many other ways: changing attitudes about fish and vegetables, learning about the value of the ingredients, and enriching the lugaw with foods in addition to oil.

Moreover, in a nonexperimental project, additional economies could be realized by expanding the program to other areas, covering more families at little additional costs; extending the duration of the campaign; using the mass media more efficiently; and through training, using more national resources and fewer high-cost foreign technicians.[11]

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[11] These cost reduction strategies are discussed in more detail in Part Three, Section C, beginning at page 64, below.

PART TWO: THE PROJECT IN NICARAGUA

I. PROJECT DEVELOPMENT AND DESIGN

A. SUMMARY

The project developed at a different pace in Nicaragua than in the Philippines, but the delays encountered enrich our understanding of the dynamics of applying modern marketing disciplines in different circumstances. Conditions in Nicaragua were more representative of developing countries in which interest in an integrated and more aggressive nutrition program is just beginning and in which the use of radio for development goals is in an experimental stage. Not until after the messages were on the air was an interministerial nutrition group formed, the Comite Tecnico de Nutricion, whose director later served as local project manager.

B. STEPS IN PROJECT DEVELOPMENT AND DESIGN

The pattern of development in Nicaragua was similar to the experiment in the Philippines. Four basic steps were followed:

- Selecting objectives for a specific target group
- Drafting and producing the messages
- Testing the messages with the target group
- Developing a media plan and monitoring system

1. SELECTING OBJECTIVES FOR A SPECIFIC TARGET GROUP

While in the Philippines a theme for the experimental messages was selected shortly after the technical assistance team began work, several weeks elapsed in Nicaragua before this decision was made. As a result of consultations with a special ad hoc committee formed in the Ministry of Health, and visits to the rural areas of the country for interviews with mothers, health and community workers, and shopkeepers, treatment of acute diarrhea in young children and infants was selected as the theme for the experiment.

In Nicaragua, as in many countries, it is common practice during episodes of diarrhea to withhold fluids and food, to administer homemade medicines, many of which are harmful, and to give purges such

as Milk of Magnesia and mineral oil. This compounds the infection with malnutrition and dehydration, resulting in gradual weakening and sometimes death.

In subsequent trips to the countryside, the team investigated the practicality of poor rural mothers' preparing a special rehydration fluid made from one liter of boiled water, two tablespoons of sugar, one-half teaspoon of salt, lemon juice, and bicarbonate of soda. Sugar and salt were found in nearly all the homes, and most mothers had a lemon tree or got lemons free from their neighbors, but bicarbonate of soda was scarce and could be purchased in only a few of the village stores. Most mothers knew how to measure the recipe for the fluid, although many would have to improvise with bottles, cups, etc.

The investigation suggested that mothers could prepare the fluid according to the recipe, except for the bicarbonate of soda which, after consultation with doctors, was dropped from the recipe. Recommendation of some element of the recipe that is impossible to fulfill would discourage many mothers from attempting the message's recommendations.

On the basis of the interviews and additional consultation with officials in the Ministry of Health, the following specific objectives were selected:

- Rural mothers will know that diarrhea dehydrates a child, and will replace lost water with an oral rehydration fluid, correctly prepared and administered, a liter a day, until the diarrhea stops;
- Rural mothers will not stop feeding their children during diarrhea, but they will feed them easily digestible foods;
- Rural mothers will not stop breastfeeding during the illness, but will stop giving cow's milk;
- Rural mothers will not give purges to children with diarrhea; and
- Rural mothers will seek medical care if the diarrhea is serious.

2. *DRAFTING AND PRODUCING THE MESSAGES*

Writing the messages was more complicated in Nicaragua than it had been in the Philippines. Aside from the lengthier process

undergone to identify the theme, the messages themselves had to be written three times before arriving at a final version.

After the first drafts were prepared, the Secretary of Press and Information insisted that the project had to be conducted in all of Spanish-speaking Nicaragua, not only in the test area originally selected. The drafts had to be revised to take into account the greater diversity of the expanded target group.

A second change resulted from the decision to set aside the messages on prevention. To have kept this objective would have required additional messages and added too much time to the evaluation instrument.

Thirdly, after the first drafts had been tested, a new authority figure was added, an older woman from the village.

Finally, the messages were extensively revised after a preliminary analysis of the findings from the household evaluation interviews, conducted 6 months after broadcasts began.

In each instance, the messages were written and produced in Nicaragua, using local radio writers to adapt the English and urban Spanish versions to the idiom of the rural families, using popular radio personalities as voices in the spots.

An analysis of the messages is found at the conclusion of this section of project development.

3. TESTING THE MESSAGES WITH THE TARGET GROUP

Because the messages were drafted several times, they were tested twice in the homes of mothers with young children throughout the rural areas. As in the Philippines, broadcast-quality messages were played for mothers after which they were questioned about their reactions.

The message tests provided valuable information about the potential effectiveness of the messages. These are some of the changes that were made as a result:

- Sound effects of a clinic were eliminated because they detracted from the message itself;
- Greater emphasis was given to importance of giving one liter daily of the rehydration fluid;

- The recipe was generally understood, but greater emphasis was given to the exact quantity of salt for each liter;

- Because we had named the fluid "Super Limonada" for ease of recognition and memorability, some mothers thought it was a commercial product – therefore, the ability of every mother to make this product at home, rather than buying it, was emphasized;

- Appropriate foods for the child were identified rather than just calling them "soft foods";

- The midwife is not a credible character for advice about child care – she was replaced with Doña Carmen, an old wise woman from the village;

- Radio personalities from the government's radio station were identified as the voices of government propaganda – therefore, soap opera personalities and commercial announcers were substituted;

- Mothers were told that they could cook the rehydration fluid if they were worried that a "cold" food would be harmful to a child with both diarrhea and respiratory problems.

4. DEVELOPING A MEDIA PLAN

Broadcast time was purchased from commercial radio stations throughout the country, instead of receiving all donated time from capital city stations as in the Philippines. The time was purchased through a Nicaraguan advertising agency. These differences made an important contribution to our understanding of the management and financial considerations of the reach-and-frequency technique.

Since the radio time was purchased, it was more important to develop an efficient media plan. However, Nicaragua, like most developing countries, has little information about the media habits of the low-income, especially rural, families. By piecing together information from household interviews, studies done of urban populations, and the experience of the cooperating advertising agency, a preliminary plan was prepared.

Midway through the campaign, the media budget, which had been about one-half of that used to introduce a locally produced soft drink, was reduced by 60%. However, because information on the target group's media habits was available by then from the benchmark and interim evaluation interviews, a more efficient media plan was prepared.

Spots were placed close to or within popular soap operas and early morning and midday versions of "Pancho Madrigal" and "Indio Filomena," two programs with loyal followings throughout the rural areas. Local stations programmed for "ranchera" music were also included.

For the first 6 months of the campaign, an estimated average of 3,405 spots were broadcast monthly. Of these, 440 spots were broadcast monthly from the national stations so that any specific locality might have been exposed to both the nationally broadcast stations and the participating local station.

C. ANALYSIS OF THE MESSAGES

The first element of the creative approach was to select a name for the rehydration fluid. Lemonade is a drink common to all parts of rural Nicaragua, yet the name for this special lemonade had to distinguish it from the other mixtures. "Super Limonada" takes advantage of existing knowledge of how to prepare lemonade, but sets it apart by calling it "super." There was a danger that mothers would confuse Super Limonada with a commercial refreshment, so the messages stressed that mothers could prepare it at home and the qualities that made it "super."

The second element was to choose an authority figure. Doctors are held in great esteem in rural Nicaragua. Even though most families rarely visit a doctor's office, they spend what they must to hurry to a health center or hospital when a child is dying. A doctor from the health center of the air was the first choice as spokesman of the new ways to care for sick children.

Young mothers in Nicaragua, as everywhere, also turn to their mothers and neighbors for advice about how to care for their children. In the second message test, midwives were found to be experts in delivering babies, but they are not sources of advice about child care. The midwife character was changed to Doña Carmen, from the village of La Esperanza. She is an older woman, wise in the ways of taking care of sick babies and comforting worried mothers.

This character has turned out to be such a success in conveying information about Super Limonada that she has the dominant role in a series of six additional campaigns recently completed in Nicaragua by the Comite Tecnico de Nutricion and Manoff International Inc.

A third authority figure was used in a different way. "Pancho Madrigal" is the single most popular program on radio in Nicaragua. In the series of messages broadcast from February to

April, the close of the experiment, Pancho's voice introduces the spots, imploring mothers to listen to Doña Carmen, "Who knows everything about everything."

Through the evaluation interviews a number of Communication Resistance Factors were identified that required special attention in the preparation of the messages. These factors included:

- Recipe, especially a half teaspoon salt and liter of water.
- Dosage – liter of Super Limonada daily.
- Feeding during diarrhea.
- Confusion of Super Limonada with a commercial product.
- Purges – effect on the child.
- "Hot-Cold" foods.
- Boiling water for Super Limonada.

All of the six different messages concentrate on the recipe, the dosage, and how to give it, but in some feeding during diarrhea is emphasized.

Other resistance factors did not receive the same emphasis since they were of lower priority. The objections raised by mothers that lemonade, a "cold" food, could not be given to children with both respiratory problems and diarrhea, did not emerge until after the interim evaluation study. Since the messages were being revised at that time and this factor posed a serious threat to adoption, an entire message was devoted to it.

The minidrama format, as in the Philippines, allowed the proponent of the new idea, the doctor or Doña Carmen, to respond to the concerns that the mother, a younger woman, had about this new way of treating a child. The phrases used by the mother in her reaction to the idea were lifted, in many cases, from actual conversations that the team had with mothers in the early phase of project development.

The messages focused attention on the recommendations for new ways of caring for children. Doña Carmen's and the doctor's manner is not didactic, but their advice is given with the firmness and authority that is expected of people in their positions. They respond to the

call for assistance from the mother of a sick child, answering her objections and calming her fears, not with jokes or jingles, but with suggestions for simple actions.

The spots conclude with the reminder that if the diarrhea continues for more than three days, the parents should carry the child to the nearest hospital. (The text of one message is found in Appendix E.)

II. PROJECT EVALUATION: DESIGN AND FINDINGS

A. RESEARCH DESIGN

1. SUMMARY

The impact of the messages on knowledge, attitude, and methods of caring for children under five with diarrhea was evaluated through household interviews before, during, and at the close of 10 months of broadcast. The interviews were conducted on a national sample, covering all of Spanish-speaking rural Nicaragua, but excluding the culturally different Eastern coast. There was no control group chosen, due to the small size of the country and the necessity of broadcasting on a national level, to provide a good test of the mass media in Nicaragua.

The findings of these interviews are projectable to all families with children under five in Spanish-speaking rural areas as defined by the Nicaraguan Bureau of Census.

In addition, interviews were conducted before and at the close of the experiment with representatives of community workers — doctors, nurses, rural school teachers, etc.

Figure 4 illustrates the research design followed.

FIGURE 4

PROJECT STRATEGY

IMPACT STUDY -- EXPERIMENTAL DESIGN

- Determine evaluation instrument
- Select sample - test and control
- Design and test questionnaire
- Conduct interviews

Household Interviews	Interviews of Doctors, Nurses, Community Workers
Baseline Survey (Wave I)	
Data Analysis	
(BEGIN BROADCAST OF MESSAGES)	
After 6 months (Wave II)	
Data Analysis	
After 10 months (Wave III)	
(END BROADCAST OF MESSAGES)	

- Data Analysis

The following Figure 5 shows the sampling plan in Nicaragua.

FIGURE 5

SAMPLE PLAN IN NICARAGUA

	COMPLETED INTERVIEWS		
	WAVE I *Baseline Study*	WAVE II *After 6 Months of Broadcast*	WAVE III *After 10 Months of Broadcast*
Test Area Total Households	942	926	984
Interviewed in Preceding Waves	-	58	108
Community Workers	203	-	129

2. *METHODOLOGY*

The interview instrument was designed by Manoff International in collaboration with nutrition authorities in Nicaragua, the Instituto Nutricional de Centro America y Panama (INCAP), and other Nicaraguans experienced in interviews of rural families.

The testimony of target group mothers was recorded in the course of a 30-minute interview covering treatment of diarrhea; knowledge of the effects of diarrhea; availability of lemons, sugar, salt (Wave I only); media habits; knowledge of Super Limonada; reaction of the mother to the advice; participation in other programs; and sociodemographic questions. (An English translation of the questionnaire is found in Appendix A.)

As in the Philippines, knowledge, attitude, and behavior changes were determined through self-reporting as recorded in household interviews, supplemented by the observations of doctors and other community workers. (See Appendix B.)

Self-reported behavior changes were used due to their greater accuracy, rather than clinical records of reduced mortality or morbidity, or observed behavior. Also, household interviews reflect the geographic coverage of the radio broadcasts rather than a limited clinic catchment area. While there is some danger in relying entirely on the testimony of the mothers themselves, the independent observations of the community workers are a check against exaggerated claims of acceptance. Moreover, the structure of the questionnaire itself also served as a check against demand responses.

Initially, control and test areas were selected in distant parts of Spanish-speaking rural Nicaragua. After discussions with the Secretary to the President for Press and Information, the plan was revised, and all of the Spanish-speaking rural areas were included in the test area, eliminating the possibility of a control area. Data from the benchmark study have been compared to interviews after 6 months and at the close of the broadcasts, 4 months later.

The sampling procedure allows findings to be projected to all low-income rural Spanish-speaking families with children under five years of age. The sampling frame of the Bureau of Census was used.

The sampling unit is the segment, a group of 20-30 households bounded by clearly defined physical limits such as rivers, roads, fences, etc. The country has been divided into approximately 16,000 segments, of which 8,000 are rural.

In the universe used by the Bureau of Census for making projections of rural populations, there are 1,648 rural sectors, each made up of 4-6 segments. From the 20% of those 1,648 sectors that the Bureau of Census included in their sample, they chose 330 rural segments. This is the frame used in this experiment.

For each wave of the interviews, 110 segments were selected at random, which were returned to the pool after each wave. This redrawing each time resulted in visiting some of the segments more

than once, but considerable mobility and choice of different households in a segment prevented more than a 10% panel from developing. No panel results will be presented in this report.

Qualified respondents were mothers of children less than five years old who have had diarrhea recently.

All interviews were recorded on tape cassettes for use in providing feedback to individual interviewers, in verifying the accuracy of completed questionnaires, and in coding.

The field investigation and coding were conducted by a group of students and professional interviewers directed by Dr. Humberto Belli, an independent researcher and professor at the Universidad de Centro America in Managua. Training of interviewers, testing the questionnaire, field interviewing, and coding were done under the supervision of the Manoff International Inc. staff.

Self-administered questionnaires were distributed to rural community workers at Waves I and III. Their responses, while not projectable because of their nonrandom selection, are indicative of the trends in behavior, attitude, and knowledge change.

B. FINDINGS

1. SUMMARY OF FINDINGS

After 10 months of broadcasting, substantial progress has been made in converting rural mothers to new habits of caring for children with diarrhea. The recommended practices include preparation and administration of a homemade oral rehydration fluid, continued feeding with regular and soft foods and breastfeeding, cessation of giving purges, and increased consultation of health personnel.

The project was not uniformly successful for all the objectives, but for the highest priority, 25% of the mothers reported giving Super Limonada during their child's last episode of diarrhea, a 23% change from the baseline. Knowledge about the function, dosage, and recipe is widespread.

A 10% increase in the number of mothers who continue to breastfeed or to give other foods during diarrhea is reported. However, little progress was made in bringing about a decline in the incidence of giving purges. Data indicate that there was an increase in the number of clinic consultations made.

2. *MESSAGE RECALL*

By the end of the project 65% of the respondents (N = 817) could recall one or more correct elements of the messages. Recall was evenly distributed throughout the country, indicating that the media plan, although reduced by 60% from the first months of the campaign, was effective.

The most important elements for recall were the ingredients in the recipe. In order for a respondent to have been counted as having recalled the complete recipe, she must have recited the recipe word for word, exactly as in the message. The respondents were not prompted and many failed to mention lemon juice because for them it was obvious that lemonade and Super Limonada required lemons. The table below shows that between Wave II and Wave III increasing numbers were able to recall the entire message, although more were able to name only some part of the recipe. The drop between Wave II and Wave III for the recipe fragments is because more were able to give the complete recipe, although some portion may be attributable to the drop in frequency with which the messages were broadcast during the last 3 months of the campaign.

TABLE 14

MESSAGE RECALL: COMPLETE RECIPE, FRAGMENTS, AND DOSAGE, EXPRESSED AS A PERCENTAGE OF MOTHERS WHO HEARD THE MESSAGE

	WAVE III (N = 817)	WAVE II (N = 724)
Complete recipe	7.7%	1.1%
Recipe fragments:		
Water – one liter	21.0%	26.0%
Sugar mentions	16.0%	23.0%
Salt mentions	17.0%	24.0%
Lemon juice	10.0%	9.0%
Correct dosage	15.0%	16.0%

Other elements of the messages were mentioned with less frequency.

In Nicaragua, the memorability of two authority figures – the Doctor from the Health Center of the Air and Doña Carmen, the old wise woman – was compared. With the exception of advising mothers to

seek medical help in case the diarrhea continued for more than three days, Doña Carmen more effectively conveyed information about Super Limonada and ways to care for a child sick with diarrhea.

It would be dangerous to generalize from this brief trial that in all cases a traditional voice, portrayed with country accents, will be more effective. Each case merits testing with the target audience.

3. *KNOWLEDGE CHANGES*

Knowledge of the key elements on which improved child care could be based increased significantly in the first 6 months of broadcasting, although unlike the Philippines, gains in knowledge continued throughout the campaign. The campaign was less successful in teaching mothers that diarrhea dehydrates their children and that purges can be harmful. Only mothers whose children had had diarrhea within the last three months from the date of interview are included.

a. Function of Super Limonada

Within 6 months of broadcast, the name recognition of Super Limonada and knowledge of its function had reached 83% of the target group (N = 926). At the end of 10 months this had increased to 89% (N = 984). This is particularly remarkable because only 65% have working radios or could correctly recall having heard the messages by Wave III. These figures reflect the emphasis put on the purpose of Super Limonada in the messages, the influence of "word of mouth," and listening to others' radios.

The messages were less successful in teaching mothers that diarrhea causes dehydration of the baby. Only 2% of the mothers in Wave III cited this as a reason for using Super Limonada. This concept was mentioned in only one of the messages broadcast after January.

b. Where to Obtain Super Limonada

By the end of 6 months, the second major knowledge objective for the campaign was reached: mothers knew that they could make Super Limonada in their homes and that it was not a commercial product. Ninety-three per cent (N = 926) of the mothers reported correctly that Super Limonada is made in the home. This number remained the same at Wave III.

c. *Recipe for Super Limonada*

Super Limonada is distinguished from other lemonade because it is made with a liter of water and one-half teaspooon of salt. Nicaraguans often prepare lemonade, usually with a generous amount of sugar, and less commonly with a pinch of salt. The quantity prepared depends if it is for a medicine, a hangover, for the whole family, etc.

Since the incorrect quantity of salt would render the mixture either ineffective or poisonous to the child, Doña Carmen repeatedly stresses the exact amount of salt to be used, "*media cucharadita de sal, ni mas ni menos*" (half a teaspoon of salt, neither more nor less). The sugar and the lemons, less important medically, and posing fewer cultural barriers, received less emphasis in the messages.

There were opportunities in various questions to tell how to make Super Limonada. The table below shows the percentage of the respondents who have learned the entire recipe or its parts. These are conservative figures, because respondents were not prompted by the interviewers to include lemon juice or the quantities of various ingredients. Only those mothers volunteering the exact quantity of the correct ingredients as specified in the messages were counted.

These data should be contrasted to the message recall of the recipe, where less than one-half of the number of mothers could recall the entire recipe. This comparison confirms the findings of commercial advertising research in which recall of the message in many cases is not related to knowledge gained from it.

TABLE 15

KNOWLEDGE OF HOW TO MAKE SUPER LIMONADA EXPRESSED AS A PERCENTAGE OF TOTAL RESPONDENTS*

	WAVE III (N = 984)	WAVE II (N = 926)	WAVE I (N = 942)
Complete recipe	14%	7%	-0-
Liter of water	59%	43%	-0-
2T of sugar	29%	19%	-0-
½t of salt	47%	36%	-0-
Juice of 2 lemons	24%	37%	-0-

* p = 0.05 for all figures

To implant the recipe further, it has been recommended to the Comite Tecnico de Nutricion that it should be the subject of a colorful, nonverbal pamphlet or poster that mothers could paste to the interior walls of their homes.

d. Correct Dosage

Because mothers strongly resisted the idea that an infant or child could drink up to a liter of lemonade in a day when sick with diarrhea, messages continually stressed that the liquid could be given "little by little," in a cup or in small amounts throughout the day and explained that when the child is well, he easily drinks a liter of water or juice in a day.

The following table shows the number of mothers who changed their knowledge and beliefs concerning this seemingly large quantity of liquid.

TABLE 16

KNOWLEDGE CHANGE: BABIES CAN CONSUME A LITER, EXPRESSED AS A PERCENTAGE OF ALL RESPONDENTS

	WAVE III *(N = 984)*	WAVE II *(N = 926)*	WAVE I *(N = 942)*
Yes, babies can consume a liter	52%*	43%*	21%
By bottle	8%	6%	4%
By spoon	2%	4%	3%
By cup	3%	4%	4%
"Little by little"	44%*	36%*	15%

* p = 0.05

It is significant that the mothers tended to respond to this question in the same words used in the text of the messages: "little by little."

In order to verify the accuracy of the respondents' knowledge, those who could volunteer the correct amounts and frequencies for administering Super Limonada were tabulated.

TABLE 17

CORRECT DOSAGE VOLUNTEERED, CALCULATED BY MULTIPLYING AMOUNTS AND FREQUENCIES VOLUNTEERED: EXPRESSED AS A PERCENTAGE OF TOTAL RESPONDENTS

	WAVE III (N = 984)	WAVE II (N = 926)	WAVE I (N = 942)
Correct dosage volunteered	42%*	21%*	16%

* p = 0.05

Given the considerable resistance to the idea of administering a liter at the beginning of the campaign, this increase is very encouraging. However, emphasis on the importance of the dosage and how it can be given should be continued in subsequent campaigns.

e. Change in Knowledge About Soft Foods

At the beginning of the campaign, only 25% of the respondents could correctly name soft foods such as rice water, purees, bananas, etc. By the end of 6 months, this figure had risen to 54% (p = 0.03) and by the end of 10 months, to 64% (p = 0.05).

f. Change in Knowledge About Purges

The messages were not successful in teaching mothers that purges were harmful for children with diarrhea. In five of the six messages broadcast from July to February, the doctor tells the mothers, "Don't give purges!" – but no explanation is given for this warning. In the messages broadcast from February to the end of the campaign, this advice was dropped. The project director decided that if mothers were to understand why purges are dangerous, more elaborate explanations would be required including identification of which commercial products acted as purges.

The knowledge gains observed during the 10-month project in Nicaragua are particularly interesting because they demonstrate that mothers can absorb large amounts of new information, even when presented in a 60-second format. This suggests that campaigns using several themes can be run simultaneously without detracting from one another.

4. *BEHAVIOR CHANGE*[1]

The campaign was most successful in convincing mothers to give Super Limonada for diarrhea. Other objectives met with less success. Our findings suggest the continuation of this campaign requires greater consideration of the cultural and economic constraints to changing the ways that children are treated when they are ill.

a. *Super Limonada*

By the end of 6 months, 25% of the respondents reported that they administered Super Limonada during the last episode of their children's diarrhea. Behavior change was measured by the number of mothers who volunteered in unaided questions that they gave Super Limonada or who answered affirmatively to an aided question and who could also give the correct quantity and frequency.

TABLE 18

BEHAVIOR CHANGE: MOTHERS GIVING SUPER LIMONADA DURING LAST EPISODE OF DIARRHEA

	WAVE III (N = 984)	WAVE II (N = 926)	WAVE I (N = 942)
Report using Super Limonada	22%	25%*	2%

* p = 0.05

The plateau in adoption may reflect a number of factors:

- No dramatic or seasonal increase in the incidence of diarrhea;
- Scarcity of lemons due to drought;
- A reduction in the frequency of airing the messages; or

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[1] The term "behavior change" is used here to describe the change in practice claimed by mothers. As in the Philippines, it is not clear the extent to which the mothers have adopted these recommendations as part of their habitual child care practices or if they have only adopted the recommendations for one episode of diarrhea.

- Acceptance by "first adopters" while the more stubborn and less adventurous remain to be persuaded.

The findings show that contrary to the usual pattern for April and May, there was no increase in the incidence of diarrhea. This may be indirectly attributed to the nationwide drought which affected the fruit crop, from which many toddlers and preschoolers contract diarrhea.

The lemon crop suffered from the drought, and the scarcity was an important constraint to preparation of Super Limonada. While in the benchmark study 48% of the mothers could point to a fruit-laden lemon tree in their patio, few could do so in the third wave.

If the scarcity had been detected earlier, a revised recipe could have been given, including only water, sugar, and salt.

In addition to behavior change as reported by mothers, there are independent indications that Super Limonada is being given as a treatment for diarrhea. Before broadcasts began, 1% (N = 203) of doctors and community workers reported that mothers gave lemonade as a treatment for diarrhea. After 10 months, 13% (N = 129) reported that mothers in their communities gave Super Limonada or lemonade for diarrhea, a change of 12%.

The community workers are now also recommending the fluid for children with diarrhea. None of them gave such advice at the baseline, while 17% reported giving this advice after 10 months. Because secondary sources such as doctors and community workers may have a dramatic effect on acceptance of a new idea, in any subsequent campaign these people should be more fully involved.

Some of the community workers may have been prompted to recommend Super Limonada because of a letter sent to them from the Minister of Health at the beginning of the campaign, but their constant exposure to the message no doubt was a strong reminder.

b. Continuation of breastfeeding

The household interviews suggest that the incidence of continuing breastfeeding during bouts of diarrhea increased during the experimental period. However, because the base of the respondents is all mothers regardless of the age of their children, the answers reflect the intentions of the mothers as well as actual behavior.

TABLE 19

ADOPTION OF CONTINUING BREASTFEEDING AS REPORTED BY MOTHERS, EXPRESSED AS A PERCENTAGE OF ALL RESPONDENTS

	WAVE III (N = 984)	WAVE II (N = 926)	WAVE I (N = 942)
Adoption of continuing breastfeeding	93%	92%*	83%

* p = 0.05

The percentage of community workers who reported that mothers continued breastfeeding during diarrhea also increased by 10 percentage points, from 62% (N = 203) at the baseline to 72% (N = 129) after 10 months.

c. Continuing Feeding

Nutritionists in many countries report that mothers stop feeding their children during episodes of diarrhea and other illnesses. The findings from this study indicate that many continue to feed them, but probably in quantities too small to satisfy their increased needs, and with foods low in nutritional value. After 10 months, the number of mothers who reported that they did not stop feeding during diarrhea had increased from 75% at the baseline to 86% (p = 0.05). An increased percentage of community workers also reported that mothers continued to feed a child during diarrhea, rising from 50.2% (N = 203) to 62.7% (N = 129), a change of 12.5%.

The foods given these children include either the soft foods specified in the message or, most often, the foods available in the house; that is, beans, rice, and tortillas. This information, combined with data findings on "soft foods," indicates that future messages on how to feed children during diarrhea should stress quantity, the texture and consistency of common foods, and how to prepare them for ease of digestibility for a sick child. Mothers seem to have developed the impression that soft foods are special, need to be purchased, or are otherwise not available, rather than regular foods rendered more digestible.

d. Soft Foods

There was an increase in the use of soft foods, from 12%-18% (Wave I to Wave III), as reported by mothers in an unaided question.

Although the adopted soft foods were comprised mostly of rice water, one of those recommended in the messages, it is unlikely that much nutritional benefit was derived. Rice water, as prepared in Nicaragua and many other countries, has little rice and mostly starchy water.

For this reason, in the messages broadcast during the last three months, rice water was dropped as one of the recommended foods.

e. Cessation of Purges

The number of mothers who give purges for diarrhea did not decline during the experiment. However, it appears that the number of mothers who customarily give more than one purgative has declined.

Since purges are widely advertised products, education of the public in their correct use represents a challenge to the Government of Nicaragua. Misuse of this and other patent medicines is probably widespread in many other countries.

TABLE 20

CESSATION OF PURGES AS REPORTED BY MOTHERS, EXPRESSED AS A PERCENTAGE OF ALL RESPONDENTS

	WAVE III (N = 984)	WAVE II (N = 926)	WAVE I (N = 942)
Mineral oil	15%*	21%*	34%
Olive oil	9%	14%	17%
Milk of Magnesia	45%	48%*	57%
Purges – Other	15%*	21%*	33%

* $p \leq 0.05$

Contrary to the reports by mothers, community workers report increased use of purges. At the baseline, only 6.9% of the 203 community worker respondents reported that mothers in their community used purges for children with diarrhea. After 10 months, 17.8% (N = 129) reported their use. This may reflect a real increase, or it may reflect the workers being more aware in general of treatments mothers use for children during diarrhea.

f. Taking the Child to the Doctor

The number of mothers reporting that they or a member of their family has visited a health center in the past year rose from 44.1% at the baseline to 56.1% after 10 months, a change of 12.0% ($p = 0.05$).

Community workers also report an increase in the number of consultations made during this period.

TABLE 21

NUMBER OF VISITS PER WEEK REPORTED BY COMMUNITY WORKERS: EXPRESSED AS A PERCENTAGE OF ALL COMMUNITY WORKERS

NUMBER OF VISITS REPORTED PER WEEK	PERCENTAGE OF COMMUNITY WORKERS REPORTING VISITS	
	AFTER 10 MONTHS (N = 129)	*BASELINE (N = 203)*
1 - 5	14.0%	16.7%
6 - 10	18.6%	5.4%
10 - 20	16.3%	14.3%
Over 20	20.2%	7.4%
No visits	30.9%	78.4%

Note the dramatic decline in number of community workers who report no requests for advice, larger than the increase in the proportion of doctors in the sample (59% after 10 months; 32% at baseline).

It is not clear if the consultations are for diarrhea or other matters. Nor is it clear how much of the increase is due to the Super Limonada messages encouraging mothers to seek medical help for diarrhea, and how much is due to other programs.

C. PROJECT COSTS

Actual project costs in Nicaragua were 1.8 times higher than in the Philippines. Several factors contributed to this: the evaluation costs alone were equal to the total cost of the Philippine project; project design, message testing, and contractor's management costs were 1.5 times higher than the amount for the Philippine project; and media time was purchased at almost 10 times the cost of the value

of the donated time in the other project. Had the project not been an experiment, many of these costs would have been far less. The table below compares actual costs and estimates for a nonexperimental project.

TABLE 22

ACTUAL PROJECT COSTS AND ESTIMATES FOR A NONEXPERIMENTAL PROJECT

	ACTUAL COSTS	NONEXPERIMENTAL COSTS
Project Design and Development (Technical assistance, message testing, travel, per diem, etc.)	$ 25,000	$20,000
Project Evaluation (Technical assistance, data collection, processing, analysis, report preparation)	77,000	11,100
Media Time	31,000	10,000
Management by Nicaraguan Government	3,000	8,600
TOTAL COSTS	*$136,000*	*$49,700*

Using the findings of the sample survey and projecting them for the rural families with children under five years of age, rough estimates can be made of the costs of reaching these families with new information and persuading the mothers to change the way that they treat their children during diarrhea. For example, using the actual costs of the project, it cost about $1.75 to reach a rural family that is estimated to have learned that Super Limonada is for treatment of diarrhea. Probable costs for a nonexperimental project would reduce this cost to about $0.65.

Based on the same estimates, it costs $7.30 to persuade each of the 18,600 families to prepare and give Super Limonada to the approximately 31,000 children under five in these households. Under nonexperimental conditions, these costs would be reduced to $2.70 per family or about $1.60 per child.

As in the case of the Philippines, these costs must be treated with a great deal of caution because they are based on projections of a sample survey. They assume that estimates for nonexperimental costs cannot be reduced nor effectiveness increased through integrating the radio messages into regular nutrition education programming; nor that other economies can be installed.

PART THREE: CONSIDERATIONS FOR FUTURE APPLICATIONS OF MASS MEDIA

The projects in the Philippines and Nicaragua have had two main objectives. The *first objective* has been to test the extent to which short radio messages, broadcast using the reach-and-frequency technique, could bring about change among large numbers of rural families without assistance from other education methods.

The preceding chapters have been devoted to presenting the findings from the evaluation surveys in both countries. The data demonstrate that the radio messages are strongly associated with extensive changes in knowledge and attitude among a large group of rural mothers. Behavior change has also been demonstrated as well, and in the Philippines the impact of the new behavior on the nutrient intake of the target group infants has been estimated.

This method of using the radio is a promising way of bringing about behavior, knowledge, and attitude changes, especially if combined with more conventional outreach and education programs.

The *second objective* of the project has been to test the practicality of this approach for other developing countries. There is no simple answer to this question. The potential of the approach, the resources that it requires, and its compatibility with existing or planned programs must be examined in the context of each country.

However, by reviewing Manoff International's experience in Nicaragua, the Philippines, and other countries, as well as assignments in the United States, some of the most important factors in the expanded application of the technique can be considered.

A. METHODS FOR INCREASING EFFECTIVENESS OF TECHNIQUE

1. CAREFUL SELECTION OF PROJECT THEMES

a. Narrowing Alternatives

Selection of the theme is easiest if authorities have prepared lists of priority health and nutrition problems. Where these priorities have not been determined, communication project designers may recommend them after consulting with a broad cross section of doctors, nutritionists, agriculturalists, and other experts. In doing

so, the manager can also identify the people and institutions whose support must be solicited and maintained as the campaign develops in greater detail.

If there is one distinguishing characteristic of the marketing approach, it is that the consumer's point of view has highest priority. The target group, the rural or urban parents of young children, also should be consulted in the search for the best themes for education. Rather than relying entirely on the expert advice of specialists, project managers can poll mothers and health and nutrition educators in several villages or neighborhoods throughout the target area to determine what advice they want and need.

b. Importance of Theme

In order for the project managers to make claims on the resources of several ministries, on the private sector, and on the mass media industry, the themes must deal with issues that many recognize as affecting large sectors of the population.

c. Consensus of "Experts"

There must be consensus of principal health care providers on each theme. Serious objections among doctors and nutritionists may lead to the messages being contradicted when mothers visit the health clinic or ask for advice. One of the most powerful tools of education, consistency of information, would be lost.

A recommendation of a subsequent campaign in the Dominican Republic was that only mothers who could prepare supplemental foods under hygienic conditions should feed their children other than breastmilk for the first 6 months of the child's life. In order to gain consensus on this recommendation, a national conference of pediatricians, public health service directors, and field supervisors was convened, before the radio messages were allowed to go on the air.

As campaigns are redesigned or new ones started, consensus building should continue through inservice training of health care personnel and contact with workers in the field.

2. DEFINING OBJECTIVES

a. Specific

Specific behavioral, knowledge, and attitude objectives must be set for each theme; *i.e.*, "the number of mothers who breastfeed infants aged 8-15 months will increase." As understanding of the economic, social, and cultural circumstances related to the theme improve,

the objectives should become narrower, quantified, more specific, and more realistic.

In Nicaragua, for example, it became apparent that mothers would not stop giving purges to infants with diarrhea unless they received more information on what products acted as purges. In order to provide this information, a new message should be designed with the specific objective that mothers would recognize Milk of Magnesia and other commercial preparations as being laxatives.

b. Realistic

The objectives must be actionable within the resources that the target group families have or are likely to receive as a result of a coordinated service or resource delivery program.

As discussed in preceding sections, the experience in Nicaragua and the Philippines suggests that the investigation of the circumstances of the target group, the seasonality of the ingredients for the enriched weaning food and the rehydration fluid, and the availability of the utensils for measurement could have been more thorough. While it was apparent that many mothers did not have teaspoons in the Philippines, and the messages were designed to take this into account, more detail might have been given about how the lugaw could be prepared without measuring spoons.

In addition to modifying the objectives or reducing expectations, a nonexperimental treatment of this message might have involved the health centers, community workers, and the private sector to insure that mothers understood how to prepare the recipes. In the case of the Philippines, edible oil companies might have been involved in the distribution of introductory amounts of oil for the infant and spoons for measuring it.

By establishing the factors critical to accomplishment of the objectives, the "resistance points," the project manager can identify those which can be treated by more education, those which cooperating agencies may provide, and those that seem intractable. In this way, a judgment may be made about the practicality of expecting the target group to adopt the recommended behavior.

In Nicaragua, field investigation showed that local stores did not have bicarbonate of soda, and it was unlikely that sufficient quantities could be distributed throughout the country in time to meet the demands that would be created by the radio campaign. Absence of this ingredient only moderately impaired the recipe's effectiveness, and so it was dropped from the recommendation. If this unavailable ingredient had been included, mothers might not have prepared the

solution at all. This conclusion was borne out by effect on behavior probably caused by the unforeseen drought that decimated the lemon crop throughout the country.

c. Test Objective with Target Group

The objectives or solution must be tested for acceptability with the target group. This should be distinguished from the determination if the objectives are realistic and practical and from the testing of the messages and other educational materials. A parallel in commercial marketing would be product testing.

In both Nicaragua and the Philippines, the mothers' own reaction to the new ideas showed that preparation and feeding of the new food and rehydration solution would have to overcome formidable barriers of acceptability. When they were asked what they thought of the idea of giving a young infant fish or cooking oil mixed with the rice porridge, they were eloquent in their reasons why a child could not eat these foods.

However, the project designers also should have worked with several families, persuading them to fix the food and then observing the mothers' and infants' reactions to it.

The purpose of this test would be to uncover mothers' satisfaction or dissatisfaction with the mixtures. Did they continue to prepare the mixture after the first introduction? Did they modify the recipe to suit other goals such as taste, cost, or convenience? What was the reaction of the infant to the new food? Since the introduction of the first solid food can be a trying experience for mother and child, it is important that the designers of the messages understand the reactions of the mothers and how these can be treated in the message.

A similar test could have been performed in Nicaragua with the rehydration fluid. Since the infants in the test would be only those with severe diarrhea, mothers will be able to detect a rapid change in the appearance and behavior of the child after taking some of the fluid. The mothers could have been observed to learn how they fed it to the child, what they did when the child rejected it, what they felt about the fluid after it had been given to the child, some of the errors or problems they had in preparing it, and how they modified it to suit their own tastes, convenience, or budget.

3. DRAFTING THE MESSAGES

The message is the most important element in the project. Without an effective message, whether it is transmitted by radio, television, poster, or in the classroom, the campaign is worthless. In

the preceding pages of this summary, considerable emphasis has been given to the process of selecting a theme and identifying realistic objectives. On the basis of this information, the creative approach is selected and the messages are prepared.

Since the messages are designed for durability — to last months or even years with only minor modifications — a major portion of project funds should be invested in these initial steps.

4. TESTING THE MESSAGES

Testing of the messages with the target group is essential. If one thing is clear from these two experiments, it is that those who prepare the messages should doubt all conventional wisdoms, should test every word or phrase in the messages, and should be ready to begin all over again when the first message testing results are in.

Some of the ways that the message could be improved for future projects are the following:

a. Test managers should design an open questionnaire that probes every issue about which there is the slightest doubt. In Nicaragua it was assumed that mothers understood the word "*mogos*," meaning mashed and well-cooked foods. Only after the first wave of project evaluation interviews did we discover that only 1% of the mothers understood what this meant. In the Philippines the effectiveness of the messages would have improved if we had stressed more the importance of adding the enrichment ingredients to foods other than rice porridge. The conventional wisdom that all mothers feed their weaning infants this watery rice gruel was too readily accepted.

b. The group the messages are tested with should include other family members and/or neighbors. In many cultures the mothers-in-law are the most important source of information about caring for the young children. In others, the extended family is less important, but the husband involves himself in everyday decisions about child care.

c. The interviews should be recorded. The principal goal of the message testing is to gather qualitative data about the target group's reaction to the message or other materials. While the interviewers may make notes, an unobtrusive cassette recorder is far more accurate. More importantly, it will allow the designers of the messages to review at their leisure the reactions of all the mothers.

d. The sample should be from diverse parts of the target area, or represent all of the subsegments of the target group. Because the respondents in message testing are not chosen on a random basis, the project managers may tend to select the most accessible respondents

without considering the variety of characteristics that may affect their reaction to the message. These characteristics include: education, income, access to health and nutrition services, participation in outreach programs such as Mothers' Clubs, ethnicity, and radio ownership.

e. In addition to interviews in the homes of the respondents, group interviews ought to be considered as a first step in testing of mass media and other materials. Group interviews are less expensive than household surveys, but require different interviewing skills.

5. MEDIA ACCESS

The comparison between the two countries is instructive — one where time was donated free by all the stations in the regions, and the other where it was purchased at commercial rates. In both countries the project received less radio time than was bargained for; however, in the Philippines loss of interest in the last months of the campaign resulted in drastically lower frequencies. Although the project in Nicaragua did not receive all the coverage contracted for, we have no evidence to suggest that the frequency fell off in the last months of the campaign.

6. LONG-TERM EXPOSURE TO MESSAGES

The reach-and-frequency technique requires repeated broadcasts over many years. This experiment ran for only one year, demonstrating only the potential for change.

The focus of the messages may need to be modified occasionally to reflect the changing characteristics of the target group, or to avoid message fatigue, especially if a very heavy schedule of broadcasts is planned. However, the same objectives ought to be pursued for months and years, without respite, so that the rationale of the recommended behavior becomes an accepted truth and the benefits of adoption are apparent.

The necessity for long-term exposure of the messages places a premium on establishing an agreement between the stations and the sponsoring government agencies.

7. PROJECT MANAGEMENT

One of the main advantages of the reach-and-frequency technique is that the management requirements are less than other uses of the mass media, such as longer programs which must be written and produced regularly, or conventional education programs that need cadres of field workers.

The investment of personnel time is heaviest during the development phase. However, once the messages are on the air, there are continuing management requirements such as the following:

- Contact with participating radio stations to assure they comply with the media schedule;
- Monitoring of feedback from field workers and the target group;
- Integration with other education and service programs.

When several campaigns get underway simultaneously, one full-time person will be needed for project management. The manager should be thoroughly trained in the use of the mass media, not necessarily an expert in any one phase, but skilled in identifying and organizing resources in the community which can serve the project.

B. INTEGRATION WITH EXISTING PROGRAMS

The effectiveness of the reach-and-frequency technique can be increased by using it to complement more conventional education and service programs. The experiments in Nicaragua and the Philippines, by design, excluded integration with other programs. However, during the experiments, numerous opportunities were identified for meshing the work of public and private sector programs with the mass media. Only a few are mentioned here; our imaginations are the only limitation to devising communication components to nutrition improvement programs.

However, it is important to remember that in most countries, thousands of families will have only infrequent contact, if at all, with representatives of service or education programs. For them, the mass media will be the only direct source of information.

For the families who are exposed to several media, the impact of each is multiplied. Field workers themselves will benefit from constant exposure to the radio messages.

Some of the ways to integrate the mass media with other programs include the following:

1. VISUAL MATERIALS

Some messages, more than others, will benefit from visual presentation. For example, the recipes recommended in both of the

campaigns readily lend themselves to visual, nonverbal display in posters and flyers. The distribution of these printed materials to a significant number of families would be a major undertaking, and could only be done as part of an already-existing outreach network.

2. COMMUNICATION WITH FIELD WORKERS

The mass media messages are constant reminders to the field workers of the high priority of these objectives. Since all the workers and supervisors, as well as the families, are listening to the same messages, a quickened pace or campaign momentum can develop.

The specific objectives of the mass media campaigns can be the subject of official communications to the community workers. While direct mail efforts are not possible in most rural areas, they may work in the cities.

3. COMBINE TECHNIQUES WITH OTHER MATERIALS

Many of the project development methods used in the reach-and-frequency approach can be transferred to the development of other education materials.

4. USE PRIVATE SECTOR DISTRIBUTION SYSTEM

The distribution systems of the private sector ought to be utilized wherever possible and where they would not detract from the objectives of the project. For example, printed information to mothers in a literate society might be sent through packaged staples such as salt. The carbonated beverage or transistor battery companies who have national distribution in nearly every country may also be used for delivering to remote rural stores.

C. RESOURCES REQUIRED FOR DESIGN AND IMPLEMENTATION

The potential for designing and executing mass media nutrition education programs exists in most developing countries. A major task ahead is to identify these resources, their mobilization, and in some cases, their training or orientation.

1. HUMAN RESOURCES

It is not necessary to import "experts" or creative talent from New York or Washington for the design of every project. Authors

of popular radio soap operas, short story writers, poets, advertising copywriters, and others already have an appreciation of the power of the written word, and many have skills in capturing the flavor of a dialogue between a doctor and a young mother, for example. Others, because they write for low-income audiences already, know the best vocabulary, sayings, and popular allegories to use.

a. Training

However, the creative resources may need training in the overall design of a campaign, in the orientation of their creative styles to the urgency and gravity of nutrition and health problems, and in the methods of inquiry about the identification of the theme and the objectives for a campaign.

Training of project managers is also a task that should be undertaken in most countries. In many, there are people with experience in the overall direction of national nonformal education programs, or in management of commercial accounts for national marketing of products to the low-income. Others know the intricacies of extracting inter-ministerial collaboration necessary for an effective overall nutrition program.

These people need training in the broad outlines and disciplines of mass media programs, in appreciation of the power of the media and methods of integrating it with other programs, in the identification of people and institutions that should contribute to a national effort, and in the management of ongoing programs.

The most effective training is done on the job, with ample time to reflect on the process and to assume increasing amounts of responsibility for design and management. If inservice training cannot be provided for those who need and want it, the second best alternative is regionally based workshops and seminars that focus on real problems, and in which the trainees are exposed to conditions very similar to those found in their countries. For this reason, we believe that training exclusively in the United States is not useful.

b. Technical Assistance

In most health ministries or integrated nutrition programs, an outsider is necessary to spark the interest and enthusiasm in this new approach to using the mass media. In some countries, this spark is all that is needed to get a sound, professionally conceived project underway. However, in most countries, the initial intervention must go beyond this to include guidance and training in communication disciplines.

Technical assistance provides the best opportunity for inservice training as well as greater assurance that the first experience

of the country with the technique will be successful and encouraging to future efforts.

Technical assistance should be intermittent and kept at a distance from decisions about media access and management of media relations. Foreigners should not be directly involved in buying or requesting media time. This is a particularly sensitive subject in most countries.

2. *ESTIMATED COSTS*

The attractiveness of this approach to using the radio for nutrition improvement is its low costs in relation to potential effectiveness. In preceding sections some of the ways that effectiveness could be increased have been suggested. These have included improvements in the design and implementation of the project and its integration with other outreach and service programs.

A major source for reduction of cost is the training of people in each country to do their own project design, management, and evaluation. This places a high priority in training and initial technical assistance.

However, there are numerous other opportunities for reducing costs:

a. Expanding the coverage of the messages, exposing more families rather than just those in the experimental area: This may require some changes in the texts of the messages and additional prebroadcast testing for changing demographic and cultural characteristics, translation, and rerecording, but this should not be costly.

b. Extending the duration of the campaign: Since the messages and other materials are designed for use over long periods of time without diminishing their effectiveness, design costs can be spread over several months, even years.

c. Increasing the number of messages: Savings can be realized by conducting field research for several messages simultaneously. In the Dominican Republic, messages for five campaigns were developed, tested, and produced in about the same time as required for a similar phase in the experiment in Nicaragua.

d. Better media planning: As each country accumulates more complete and accurate information about the media habits for low-income families, the most popular stations and listening hours will carry the bulk of the messages.

Estimated costs must be prepared for each country since the costs for each element differ. In Nicaragua, a 60-second spot reaching about one million rural families costs about $7.00, while in Iloilo, Philippines, a spot reaching an audience of about the same size costs about $0.25. A field interviewer in Nicaragua costs about $20.00 per day including travel and per diem, while in the Phillippines they may cost about $8.00 daily.

e. Integration with other programs: the use of the mass media can be combined with existing nutrition education and service programs to increase their mutual effectiveness, reducing unit costs. In addition, nutrition education, family planning, and preventive health care education programs can be integrated, sharing costs for field investigations, creative resources, and some administrative costs, and jointly bargaining for media time and production costs. Since many of the subjects of nutrition, family planning, and health are conceptually similar, a synergistic effect may be realized by combining their treatment in educational messages.

APPENDIX A:

HOUSEHOLD QUESTIONNAIRE

Appendix A

EVALUATION QUESTIONNAIRE: PHILIPPINES

(Phase III) Interview No._____

Province _____ Old ( ) New ( )

Town _____ Barrio _____ Recorded ( ) Not Recorded ( )

Name of Respondent _____ Age _____

Address _____

SOCIO-DEMOGRAPHIC DATA

Age of Housewife _____

Educational Attainment	HW	HH
Some elementary	1	1
Completed elementary	2	2
Some high school	3	3
Completed high school	4	4
Vocational	5	5
Some college	6	6
Has a degree	7	7
Completed/Some master's degree	8	8
Not know/Refused	9	9

Occupation of Respondent

_____

Occupation of Household Head

_____

Other Sources of Income

_____

Size of Household

Adults 16 years and over_____
Children 0-15 years _____
TOTAL _____

Facilities in the Home

Running water
Electricity
Radio
  Working radio
  Radio not working
  Transister
  Power
  Both T and P
  Has FM band
Television

Weekly Income Earned

_____

Monthly Income of Household

200 or less
201 - 300
301 - 400
401 - 600
601 - 800
801 - 1000
1001 and over:_____
Not know/Refused

Home Ownership

Own house
Renting (_____)
Neither own nor rent

Socio-Demographic Data (cont'd)

Type of Respondent

Old 5
New 6

Economic Class

Class C ( )
Class D
Class E

Card Id 1 (3)

Economic Class	Control Area	Test Area	Classification
Class C 1	Sibonga 1	Guimbal 1 Lemery 7	30 yrs. or younger 1
Class D 2	Argao 2	Miagao 2 Alimodian 8	Pregnant 2
Class E 3	Dalaguete 3	Barotac Cabatuan 9	Over 30 yrs. with child 12 months or younger 3
	Alcoy 4	Nuevo 3 Janiuay 0	
Interview No.	Boljoon 5	Anilao 4 Lambunao	
_____	Oslob 6	Barotac Duenas	
		Viejo 5 Calinog	
		Ajuy 6 Passi	

PROJECT COMMUNICATE

TALK TO RESPONSIBLE ADULT MEMBER OF HOUSEHOLD

INTRODUCTION: Good morning/afternoon/evening. I am _____ from Consumer Pulse, Inc., an independent research agency. We are conducting a survey among mothers or among women who are pregnant. May I talk with the lady of the house please?

IF "IN" ASK TO SPEAK WITH HER; IF "NO" FIND OUT HOW OLD SHE IS OR WHETHER SHE IS PREGNANT AND GO TO YOUR NEXT SAMPLE RESPONDENT. IF RESPONDENT PROMISES TO BE QUALIFIED FOR AN INTERVIEW BUT IS NOT AT HOME, MAKE AN APPOINTMENT AND RECORD THIS ON THE CALL RECORD OF THIS QUESTIONNAIRE.

TALK TO QUALIFIED HOUSEWIFE

1a. How many children 15 years or younger are there in the house?_____

b. What are their ages? _____

2. Are you pregnant? yes_____ no _____

FEEDING HABITS (CHILDREN 0-6 MONTHS OLD)

3a. IF WITH CHILDREN What do you usually feed babies who are from 1 to 6 months old in your household?

IF PREGNANT FOR THE FIRST TIME SAY "Based on your knowledge, what do you usually feed babies who are from 1 to 6 months old in your household?"

PROBE Are they fed anything else for the first 6 months? What else?

Feeding Habits (Children 0-6 months old) (cont'd)

Breast milk
Other milk _____ (specify)
_____

Rice
Masned sweet potato (camote)
Corn meal
Bread/Biscuit
Lugaw

Avocado
Banana
Mango
Otner fruit _____ (specify)
_____

Calamansi juice
Otner fruit juices _____ (specify)
_____

Eggs/egg yolk
Fish
Cooking _____ (specify) oil/lard
_____

Tiki-Tiki
Vitamin supplement _____ (specify)
_____

Vegetables _____ (specify)
_____

Mashed Vegetables _____ (specify)
_____

Vegetable Soup
Am/Lanot (Water from rice/corn)
Seafoods _____ (specify)
_____

Coconut milk
_____

DO NOT READ LIST. RECORD UNDER UNAIDED ALL OF HOUSEWIFE'S VOLUNTARY RESPONSES. WHEN SHE HAS FINISHED, READ TO HER ALL ITEMS WHICH SHE DID NOT MENTION. IF SHE SAYS BABIES ARE FED THESE FOODS, RECORD RESPONSE UNDER AIDED.

b. Do you give lucuw to a baby less than 6 months old or not?

FOR CODER'S USE ONLY:
Fed breast milk only
Yes
No - SKIP TO Q4a

c. Knat do you put in your baby's lugaw when he is less than 6 months old? Do you put any _____?

Feeding Habits (Children 0-6 months old) (cont'd)

READ EACH ITEM ON THE LIST. CHECK "YES" OR "NO" FOR EACH.

	No	Yes
Milk	( )	( )
Sugar	( )	( )
Fruit	( )	( )
Vegetable Soup	( )	( )
Ajinomoto/Vetsin	( )	( )

IF MENTION ANY OF THESE ASK Q3d AND e. IF NONE MENTIONED, SKIP TO Q4a.

	No	Yes
Fresh Fish	( )	( )
Salted dried fish (buwad)	( )	( )
Salted wet fish (ginamos)	( )	( )
Green leafy vegetables	( )	( )
_____ (specify)		
Other vegetables	( )	( )
_____ (specify)		
Coconut milk	( )	( )
Oil/fat	( )	( )
_____ (specify)		

d. What kind of pot do you use to cook lugaw? How big is it?

_____

SHOW POT Here is a pot. Pretend that this is the pot where you cook your lugaw. SHOW CUPS AND SPOONS Here are some measures.

ASK THE FOLLOWING QUESTION AND be SEPARATELY FOR OIL, FISH, VEGETABLE AND/OR COCONUT MILK.

How much (oil, fish, vegetable or coconut milk) do you/would you put in the lugaw for your baby before he is 6 months old?

	Not Put	Less 1/4 tsp	1/4 tsp	1/2 tsp	1 tsp	1 tbs	1/4C	1/2C	1C	Others
Oil	( )	( )	( )	( )	( )	( )	( )	( )	( )	_____
Fish	( )	( )	( )	( )	( )	( )	( )	( )	( )	_____
Vegetables	( )	( )	( )	( )	( )	( )	( )	( )	( )	_____
Coconut milk	( )	( )	( )	( )	( )	( )	( )	( )	( )	_____

Feeding Habits (Children 0-6 months old) (cont'd)

e. How much lugaw do you make in 1 day? _____ Pot/Cups

f. How much lugaw do you feed your baby in 1 day? _____ Pot/Cups

g. How often do you put (oil, fish, vegetables or coconut milk) in your baby's lugaw before he is 6 montsh old?

IF LESS THAN ONCE A WEEK How many times in a month do you put (oil, fish, vegetables or coconut milk) in his lugaw?

IF MORE THAN ONCE A WEEK How many days a week do you put (oil, fish, vegetables or coconut milk) in your baby's lugaw before he is 6 months old?

RECORD RESPONSE VERBATIM. FREQUENCY SHOULD BE INDICATED IN TERMS OF NUMBER OF TIMES WITHIN A SPECIFIED PERIOD LIKE 3 TIMES A MONTH, 2 DAYS A WEEK.

	Not Put	Less Than Once/Week	More Than Once/Week
Oil	( )		
Fish	( )		
Vegetables	( )		
Coconut milk	( )		

4a. You said you feed a child under 6 months with _____. SKIP TO Q5 if
Fed same way
Pregnant with first child
Fed differently

REPEAT ALL FOOD ITEMS MENTIONED BY HOUSEWIFE IN Q3a AND c.

Was your last child fed in this way before he/she was 6 months old or was he/she fed differently?

b. What was different?

_____

5a. Is that how you will feed your next child before he is 6 months old? Will you feed him this way or differently? SKIP TO Q6
Will feed same way
Will not have another child
Will feed differently.

b. What will be different?

_____

FEEDING HABITS (CHILDREN 6 MONTHS - 1 YEAR OLD)

6a. IF WITH CHILDREN What do you usually feed babies who are from 6 months to a year old in your household?

IF PREGNANT FOR THE FIRST TIME SAY "Based on your knowledge, what do you usually feed babies who are from 6 months to a year old in your household?"

PROBE Are they fed anything else between 6 months and a year? What else?

Breast milk
Other milk _____ (specify)
_____

Rice
Mashed sweet potato (camote)
Corn meal
Bread/Biscuit
Lugaw

Avocado
Banana
Mango
Other fruit _____ (specify)
_____

Calamansi juice
Other fruit juices _____ (specify)
_____

Eggs/egg yolk
Fish
Cooking _____ (specify) oil/lard
_____

Tiki-Tiki
Vitamin supplement _____ (specify)
_____

Vegetables _____ (specify)
_____

Vegetable Soup
Am/Lanot (Water from rice/corn)
Seafoods _____ (specify)
_____

Coconut milk
_____

Everything adults eat
_____

For coder's use only:

Fed breast milk only

DO NOT READ LIST. RECORD UNDER UNAIDED ALL OF HOUSEWIFE'S VOLUNTARY RESPONSES. WHEN SHE HAS FINISHED, READ TO HER ALL ITEMS WHICH SHE DID NOT MENTION. IF SHE SAYS BABIES ARE FED THESE FOODS, RECORD RESPONSES UNDER AIDED.

IF HOUSEWIFE ANSWERS "EVERYTHING ADULTS EAT" PROBE AS TO WHAT THESE FOODS ARE.

Feeding Habits (Children 6 months - 1 year old) (Cont'd)

b. Do you give lugaw to a baby who is between the age of 6 months and a year old?

Yes
SKIP TO Q7a — No

c. What do you put in your baby's lugaw when he is between 6 months and a year old? Do you put any _____?

READ EACH ITEM ON THE LIST. CHECK "YES" OR "NO" FOR EACH.

IF MENTION ANY OF THESE ASK Q6d AND e. IF NONE MENTIONED, SKIP TO Q7a.

	No	Yes
Milk	( )	( )
Sugar	( )	( )
Fruit	( )	( )
Vegetable Soup	( )	( )
Ajinomoto/Vetsin	( )	( )
Fresh fish	( )	( )
Salt dried fish (buwad)	( )	( )
Salted wet fish ginamos	( )	( )
Green leafy vegetables	( )	( )
_____ (specify)		
_____		
Other vegetables	( )	( )
_____ (specify)		
_____		
Coconut milk	( )	( )
Oil/fat	( )	( )
_____ (specify)		

d. SHOW POT. Here is a pot. Pretend that this is the pot where you cook your lugaw. SHOW CUPS AND SPOONS. Here are some measures.

ASK THE FOLLOWING QUESTION AND 63 SEPARATELY FOR OIL, FISH, VEGETABLES AND/OR COCONUT MILK.

How much (oil, fish, vegetable or coconut milk do you/would you put in the lugaw for your baby between 6 months and 1 year?

Feeding Habits (Children 6 months - 1 year old) (cont'd)

	Not Put	Less 1/4 tsp	1/4 tsp	1/2 tsp	1 tsp	1 tbs	1/4C	1/2C	1C	Others
Oil	( )	( )	( )	( )	( )	( )	( )	( )	( )	_____
Fish	( )	( )	( )	( )	( )	( )	( )	( )	( )	_____
Vegetables	( )	( )	( )	( )	( )	( )	( )	( )	( )	_____
Coconut milk	( )	( )	( )	( )	( )	( )	( )	( )	( )	_____

e. How much lugaw do you make in 1 day? _____ Pot/Cups

f. How much lugaw do you feed your baby in 1 day? _____ Pot/Cups

g. How often do you put (oil, fish, vegetables or coconut milk) in your baby's lugaw between 6 months and 1 year?

IF LESS THAN ONCE A WEEK How many times in a month do you put (oil, fish, vegetables or coconut milk) in his lugaw?

IF MORE THAN ONCE A WEEK How many days a week do you put (oil, fish, vegetables or coconut milk) in your baby's lugaw between 6 months and 1 year?

RECORD RESPONSE VERBATIM. FREQUENCY SHOULD BE INDICATED IN TERMS OF NUMBER OF TIMES WITHIN A SPECIFIED PERIOD LIKE 3 TIMES A MONTH, 2 DAYS A WEEK.

	Not Put	Less Than Once/Week	More Than Once/Week
Oil	( )	_____	_____
Fish	( )	_____	_____
Vegetables	( )	_____	_____
Coconut milk	( )	_____	_____

7a. You said you feed a child between 6 months and a year old with _____.

Fed same way
SKIP TO Q8 — Pregnant with first child/ first child under 6 mos. old
Fed differently

REPEAT ALL FOOD ITEMS MENTIONED BY HOUSEWIFE IN Q6a AND c.

Feeding Habits (Children 6 months - 1 year old) (cont'd)

Was your last child fed in this way when he/she was between 6 months and a year old or was he/she fed differently?

b. What was the difference?

_____

8a. Is that how you will feed your next child when he is between 6 months and 1 year old? Will you feed him this way or differently?

Will feed same way

[SKIP TO Q9]

Will not have another child

Will feed differently

b. What will be different?

_____

COOKING HABITS

9. At what age do you start feeding a baby _____?

[READ LIST. RECORD AGE IN YEARS AND/OR MONTHS.]

	Months/Years		Months/Years
Lugaw	_____	Oil/fat	_____
Rice (not rice "am" water)	_____	Sauteed food	_____
Salted wet fish	_____	Fried food	_____
Fresh fish	_____	Green leafy vegetables and green beans (not water from vegetables)	_____
Corn meal	_____		
Other seafood	_____		

10a. Do you use cooking oil and/or lard?

Yes

[SKIP TO Q10c] — No

b. How often do you use cooking oil and/or lard? [IF LESS THAN ONCE A WEEK] How many times do you use cooking oil and/or lard in a month? [IF MORE THAN ONCE A WEEK] How many days a week do you use cooking oil and/or lard?

_____ Less than once a week _____ More than once a week

c. Do you have any cooking oil in the house?

Yes

[SKIP TO Q10c] — No

Cooking Habits (cont'd)

d. May I see it? _____ Present _____ Not Available

e. Do you buy cooking oil? _____ Yes _____ No

f. How often do you buy it? [IF LESS THAN ONCE A WEEK] How many times a month do you buy cooking oil? [IF MORE THAN ONCE A WEEK] How many days a week do you buy cooking oil?

Less than once a week

[SKIP TO Q10h]

More than once a week

g. Why do you not use cooking oil?

_____

h. Is it expensive? _____ Yes _____ No

11a. What kinds of fish do you serve?

Salted dry fish
Salted wet fish
fresh fish

[SKIP TO Q11d] — None

b. How often do you serve fish? _____ Less than once a week

_____ More than once a week

[IF LESS THAN ONCE A WEEK] How many times do you serve fish in a month?

[IF MORE THAN ONCE A WEEK] How many days a week do you serve fish?

c. Do you buy fish? [SKIP TO Q11e] — Yes [SKIP TO Q12] — No

d. Why do you not serve fish?

_____

e. Is fish expensive? _____ Yes _____ No

f. How often do you buy it? _____ Less than once a week

_____ More than once a week

[IF LESS THAN ONCE A WEEK] How many times a month do you buy fish?

[IF MORE THAN ONCE A WEEK] How many days a week do you buy fish?

12a. What kinds of vegetables do you serve in your house? What others?

_____

Cooking Habits (cont'd)

12b. [IF SERVE GREEN LEAFY VEGETABLES OR GREEN BEANS] How often do you serve green leafy vegetables or green beans in your house?

[IF LESS THAN ONCE A WEEK] How many times a month do you serve green leafy vegetables or green beans?

[IF MORE THAN ONCE A WEEK] How many days a week do you serve green leafy vegetables?

_____ Less than once a week _____ More than once a week

c. [IF SERVE OTHER KINDS OF VEGETABLES] How often do you serve other kinds of vegetables in your house?

[IF LESS THAN ONCE A WEEK] How many times a month do you serve other kinds of vegetables?

[IF MORE THAN ONCE A WEEK] How many days a week do you serve other kinds of vegetables?

_____ Less than once a week _____ More than once a week

d. Do you buy vegetables and/or grow them?

Buy only
Grow only
Both buy and grow

13a. Do you serve sauteed and/or fried food in your house?

Yes

[SKIP TO Q14] No

b. How often do you serve sauteed and/or fried food in your house?

[IF LESS THAN ONCE A WEEK] How many times do you serve sauteed and/or fried food in a month?

_____ Less than once a week _____ More than once a week

RADIO INFORMATION

14a. Do you own a radio or not?

[IF OWN] May I see it? Please turn it on.

[SKIP TO Q14c] Own a working radio
Own a radio that does not work
Not own

Radio Information (cont'd)

14b. Do you listen to someone else's radio regularly?

Yes

[SKIP TO Q15] No

c. Did you listen to the radio in the past week?

[SKIP TO Q15] Listened in past week
Not listened in past week
Not own radio

d. [IF LISTENS] How often did you listen to the radio in the past week?

[SKIP TO Q14f] Daily

_____ _____

e. On what days did you listen to the radio in the past week?

___ Monday ___ Tuesday ___ Wednesday ___ Thursday ___ Friday

___ Saturday ___ Sunday

f. During what hours did you usually listen to the radio in the past week?

_____ A.M. _____ P.M.

g. What is your favorite station? _____

h. What is your favorite program? _____

15a. Have you ever heard a radio announcement or program about Lita and her mother and how they feed the baby?

Yes

[SKIP TO Q16a] No

b. What do you remember about Lita and her mother? [PROBE] What were they saying? What was the story about?

_____

16a. Have you ever heard of putting oil in a 6-month-old baby's lugaw?

Yes

[SKIP TO Q16c] No

b. How did you hear of this advice?

_____

16c. Do you think putting oil in a 6-month-old baby's lugaw is good or not? ____ Yes ____ No

d. Why do you say that?

_____

17a. Have you ever heard of putting fish in a 6-month-old baby's lugaw?

Yes

SKIP TO Q17c — No

b. How did you hear of this advice?

_____

c. Do you think putting fish in a 6-month-old baby's lugaw is good or not?

____ Yes ____ No

d. Why do you say this?

_____

18a. Have you ever heard of putting mashed vegetables or vegetables in a 6-month-old baby's lugaw?

Yes

SKIP TO Q18c — No

b. How did you hear of this advice?

_____

c. Do you think putting mashed vegetables or vegetables in a 6-month-old baby's lugaw is good or not? ____ Yes ____ No

d. Why do you say that?

_____

19a. Have you ever put oil in your baby's lugaw before he was 1 year old?

Yes

SKIP TO Q19c — No

SKIP TO Q20 — Never fed baby lugaw below 12 months

b. What was the result on your baby?

_____

19c. If not put. Why did you not put oil in your baby's lugaw. Why else?

_____

d. Have you ever put fish in your baby's lugaw before he was 1 year old?

Yes

SKIP TO Q19f — No

e. What was the result of your baby?

_____

f. If not put. Why did you not put fish in your baby's lugaw? Why else?

_____

g. Have you ever put vegetables or mashed vegetables in your baby's lugaw before he was 1 year old?

Yes

SKIP TO — No

h. What was the result on your baby?

_____

i. If not put. Why did you not put mashed vegetables/vegetables in your baby's lugaw? Why else?

_____

20. Where/From whom do you get advice on how to feed and care for your baby?

_____

21a. Would you like to hear more from Lita and her mother? ____ Yes ____ No

b. Why do you say so? Why else?

_____

22. What other health and nutrition programs do you know? What others? If not mentioned, ask directly about each one as follows:

Do you know of _____?

23. Have you participated in any of these? If, so, which ones have you participated in?

Programs	Know Not Aided	Know Aided	Not Know	Part.	N/Part.
MCH-Target Mother Child Health	( ) (62)	( )	( )	( ) (65)	( ) (67)
Mother Craft	( )	( )	( )	( )	( )
Bureau of Agricultural Extension	( )	( )	( )	( )	( )
Nutri Pack	( )	( )	( )	( )	( )
Under 5 Clinics	( )	( )	( )	( )	( )
Community Health Aids	( )	( )	( )	( )	( )
Green Revolution	( )	( )	( )	( )	( )
Tinjang	( )	( )	( )	( )	( )
World Health Workers	( )	( )	( )	( )	( )
_____	( )	( )	( )	( )	( )
_____	( )	( )	( )	( )	( )
Not participated in any	( )	( )	( )	( )	( )
Not know any	( )	( )	( )	( )	( )

THANK YOU FOR YOUR COOPERATION

TRACKING QUESTIONNAIRE

SNEM #_____

MINISTERIO DE SALUD PUBLICA — *MINISTER OF PUBLIC HEALTH*
MANOFF INTERNATIONAL INC.
CUESTIONARIO DE IMPACTO — *IMPACT QUESTIONNAIRE*
B.H. Marzo 11, 1976 — *March 11, 1976*

Buenos días (Buenas tardes), me llamo_____
Good day (Good afternoon), my name is _____
y trabajo para Salud. Estamos haciendo un estudio en esta área como parte de una
and I work for Health. We are doing a study in this area as part of a National
Campaña Nacional contra la diarrea.
Campaign against diarrhea.

¿Puedo hablar con la Señora de la Casa? -o alguién que haga sus veces-
May (can) I speak with the lady of the house? - or someone taking her place?

1) Hay niños en esta casa que no hayan cumplido los 5 años? _____
Are there children in this house under 5 years of age?

NO_____ (Salte a Pregunta # 47)
No *(Skip to Question #47)*
SI _____
Yes

2) Comensando con el más tierno me podría decir la edad de los niños que _____
Beginning with the youngest would you be able to tell me the age of the
viven en esta casa? *children that live in the house?*
(Marcar número de niños en cada casilla)
(Indicate the number of children in each house)

1. Menos de 6 meses ( ) _____
Less than 6 months
2. De 6 meses a 1 año ( ) _____
From 6 months to 1 year
3. De 1 año a 2 ( ) _____
From 1 year to 2
4. De 2 años a 3 ( ) _____
From 2 years to 3
5. De 3 años a 4 ( ) _____
From 3 years to 4
6. De 4 años a 5 ( ) _____
From 4 years to 5

.../...

_____ 3) Empezando con el menor de los niños, con qué frecuencia le ha dado diarrea desde hace un año? (Desde la Semana Santa pasada) AE. *Beginning with the youngest child, how frequently has he had diarrhea in the last year (since the last Holy Week)?*
(Vea el Código. Indique para cada niño la frecuencia de diarrea)
(Look at the Code. Indicate for each child the frequency of diarrhea)

CODIGO *CODE*

A. Continua (Constante). *Continuous (Constant)*
B. Cada Semana. *Every week*
C. Como cada mes. *Every month*
D. Como cada 3 meses. *Every 3 months*
E. Casi nunca. *Almost never*
F. Nunca. *Never*
G. No sabe. *Don't know*
H. Otro. Especifique:_____ *Other. Specify*

		A	B	C	D	E	F	G	H	
	Hijo #1 *Child #1*	( )	( )	( )	( )	( )	( )	( )	( )	_____
(De menor a mayor)	Hijo #2 *Child #2*	( )	( )	( )	( )	( )	( )	( )	( )	_____
	Hijo #3 *Child #3*	( )	( )	( )	( )	( )	( )	( )	( )	_____
(From youngest to oldest)	Hijo #4 *Child #4*	( )	( )	( )	( )	( )	( )	( )	( )	_____
	Hijo #5 *Child #5*	( )	( )	( )	( )	( )	( )	( )	( )	_____
	Hijo #6 *Child #6*	( )	( )	( )	( )	( )	( )	( )	( )	_____
	Hijo #7 *Child #7*	( )	( )	( )	( )	( )	( )	( )	( )	_____

_____ 4) De sus niños menores de cinco años, hay alguno que tenga diarrea ahorita?
Of your children under 5 years of age, are there any that have diarrhea now?

SI_____. Hace cuanto comensó la diarrea?
Yes *When did the diarrhea begin?*

1) Hoy ( ) *Today*
2) Ayer ( ) *Yesterday*
3) Anteayer ( ) *Day before yesterday*
4) Semana Pasada ( ) *Last week*
5) Hace un mes ( ) *A month ago*
6) Continua ( ) *Continuous*
7) No sabe ( ) *Don't know*

SALTE DESPUES A PREGUNTA # 7
SKIP TO QUESTION 7

NO_____. (HACER PREGUNTA 5 y 6)
No *(Do Question 5 and 6)*

.../...

5) ¿CUAL DE SUS NIÑOS FUE EL ULTIMO QUE ESTUVO CON DIARREA?
WHICH OF YOUR CHILDREN WAS THE LAST THAT HAD DIARRHEA?

1. Menor de 6 meses ( ) _____
   Less than 6 months
2. De 6 meses a 1 año ( ) _____
   From 6 months to 1 year
3. De 1 año a 2 ( ) _____
   From 1 year to 2
4. De 2 años a 3 ( ) _____
   From 2 years to 3
5. De 3 a 4 años ( ) _____
   From 3 to 4 years
6. De 4 años a 5 ( ) _____
   From 4 years to 5

6) HACE CUANTO TIEMPO TUVO DIARREA? *HOW LONG AGO DID HE HAVE DIARRHEA?* _____

1. Ayer ( )
   Yesterday
2. La semana pasada ( )
   Last week
3. Hace una a 4 semanas ( )
   1 - 4 weeks
4. Hace uno a 2 meses ( )
   Two months
5. Hace 2 a 6 meses ( )
   Two - six months
6. Hace más de 6 meses ( )
   More than 6 months

7) QUE ALIMENTOS O BEBIDAS LE DABA AL NIÑO CUANDO ESTABA ENFERMO? *WHAT FOODS OR DRINKS DO YOU GIVE YOUR CHILD WHEN HE IS SICK?* _____

Ninguno ( ) *Nothing*
No sabe ( ) *Don't know*
Sólo pecho ( ) *Only breast milk*
Comida ordinaria ( ) *Ordinary food*

(UNAIDED RESPONSES)

ALIMENTOS	FRECUENCIA *FREQUENCY* A: Desde comienzo de la diarrea *From the beginning of the diarrhea*	B: Después del primer día *After the first day* 1o. 1-3 veces diarias *1-3 times daily*	2o. 4 veces y más *4 times or more*	Verificado *Verified*	
1) Atol					___
2) Cebada					___
3) Agua de Arroz					___
4) Avena					___
5) Kola Shaler					___
6) Leche de vaca					___
7) Mazamorra					___
8) Jugos o Frescos					___
9) Sopas					___
10) Limonada					___
11) Super-limonada					___
12) Puré de papas					___
13) Mingas					___
14) Maduros o plátanos					___
15) Carnes					___
16) Queso					___
17) Pan					___
18) Frutas					___
19) Otras sopas					___
20) Tortilla					___
21) Pescado y mariscos					___
Otros *					___
* Especifique:					___

Si se ha marcado SUPERLIMONADA, pregunte:
If SUPER LEMONADE has been marked, ask:

8) ¿COMO PREPARO ESA BEBIDA? _____
HOW IS THAT DRINK PREPARED?

- Usó más de un litro de agua ( )
  More than a liter of water used
- " Un litro de agua ( )
  A liter of water used
- " menos de un litro de agua ( )
  Less than a liter of water used
- " Más de 2 cucharaditas de azúcar ( )
  More than 2 teaspoons of sugar used
- " 2 cucharaditas de azúcar ( )
  2 teaspoons of sugar used
- " menos de 2 cucharaditas de azúcar ( )
  Less than 2 teaspoons of sugar
- " más de 1/2 cucharadita de sal ( )
  more than 1/2 teaspoon of salt
- " 1/2 cucharadita de sal o un puntito ( )
  1/2 teaspoon of salt or a pinch
- " Jugo de limón ( )
  Lemon juice
- Otras mezclas ( ) Especifique: *Specify* _____
  Other mixtures

9) ¿QUE MEDICINAS SON LAS QUE HA DADO A SU (S) NIÑO (S) PARA LA DIARREA? *WHAT MEDICINES HAVE YOU GIVEN YOUR CHILD (CHILDREN) FOR DIARRHEA?* _____

1. Suprese ( )
2. Vermil ( )
3. Agromicina ( )
4. Leche magnesia ( )
   Milk of Magnesia
5. Terramicina ( )
   Terramycin
6. Aceite fino ( )
   Refined oil
7. Sal Andrews ( )
8. Alka seltzer ( )
   Alka Seltzer
9. Inyecciones ( )
   Injections
10. Aciolfa ( )
11. Vitaminas ( )
    Vitamins
12. Cápsulas o pastillas ( )
13. Enteromebac ( )
14. Kaopectate ( )
    Kaopectate
15. Sin especificar ( )
    Without specifying
16. Lo que dice el médico o el hospital ( )
    What the doctor of hospital tells me
17. Otros ( ) Especifique: *Specify*
    Others

10) CUANDO LA DIARREA COMENZO LE:
When the diarrhea began:
(LEA CADA COSA Y LUEGO QUE EL ENTREVISTADO DIGA SI O NO, PRE
(Read each thing and then have the interviewee say Yes or No, ask her
GUNTELE PORQUE LO HIZO O PORQUE NO LO HIZO O SI HAN TRATADO
why she did it or why she didn't do it, or if they have treated
LA DIARREA EN ESA FORMA DESE EL PRIMER DIA. COMIENZE CON
the diarrhea in that way since the first day. Begin with
EL PRIMERO Y LEALOS TODOS). Recuerde referirse a lo comienzo de la
the first and read all of them.) Remember it is referring to the beginning
diarrea.
of the diarrhea.

.../...

10) CUANDO LA DIARREA COMENZO, LE:
When the diarrhea began:

Tratamiento / Treatment	Ultimo caso Si / Yes	Ultimo caso No / No	Last time Razón / Reason	Have you ever treated diarrhea this way before? Le ha hecho alguna vez antes por diarrea? Si / Yes	No
____ Suspendió el pecho? *Did you stop breast-feeding him?*	( )	( )	_____	( )	( )
____ Quitarle otros alimentos? *Did you take away other foods from him?*	( )	( )	_____	( )	( )
____ Le dió alimentos suaves? (listar alimentos) *Did you give him soft foods? (List foods)*	( )	( )	_____	( )	( )
____ Le dió purgantes? *Did you give him purgatives?*	( )	( )	_____	( )	( )
____ Le dió aceite fino? *Did you give him refined oil?*	( )	( )	_____	( )	( )
____ Le dió aceite de oliva? *Did you give him olive oil?*	( )	( )	_____	( )	( )
____ Le dió leche de magnesia? *Did you give him milk of magnesia*	( )	( )	_____	( )	( )
____ Le dió Alka Seltzer? *Did you give him Alka Seltzer*	( )	( )	_____	( )	( )
____ Le dió suero inyectado? *Did you give him injected I.V. fluid?*	( )	( )	_____	( )	( )
____ Le dió suero tomado? *Did you give suero to drink?*	( )	( )	_____	( )	( )
Por ejemplo: Sobre Sal Kindergol *For example: Sobre Sal, Kindergol*					
____ Qué cantidad le dió? *How much did you give him?*			_____		
____ Con que frecuencia le dio esa cantidad? *How frequently, did you give him that quantity?*			_____		
____ Le dió limonada? *Did you give him lemonade?*	( )	( )	_____	( )	( )
____ Qué cantidad? *What quantity? How much?*			_____		
____ Con que frecuencia? *How frequently?*			_____		
____ Le dió alguna pastilla *Did you give him some pills*	( )	( )	_____	( )	( )
____ Llevó al niño al hospital, clínica, Centro de Salud o Dispensario Médico? *Did you take your child to the hospital, clinic, Health Center or Medical Dispensary?*	( )	( )	_____	( )	( )

...1...

10) (Continuación...) *(Continuation)*

____ Llevó al niño donde EL curandero? *Did you take your child to the folk doctor?*	( )	( )	_____	( )	( )
____ Le hizo alguna medicina aquí en su casa? (Especificar) *Did you give him any medicine here in your house? (Specify)*	( )	( )	_____	( )	( )

11) UD. ME ACABA DE EXPLICAR LO QUE HIZO AL COMIENZO DE LA DIARREA. DESPUES DE COMENZADA, QUE OTRA COSA HIZO UD.? (IMPORTANTE: SI MENCIONA ALGO NUEVO A LO CONTESTADO EN LA PREGUNTA ANTERIOR, PREGUNTARLE POR QUE Y ESCRIBIRLO A LA DERECHA)
You have just explained to me what you did at the beginning of the diarrhea. After it began, what else did you do? (Important: If she mentions something new to the interviewer in the preceding question, ask the interviewee why and write it to the right. Explain if necessary)

AE.	RAZON (¿POR QUE?) Reason (Why?)
____ Suspendió el pecho? *Did you stop breast-feeding him?*	_____
____ Quitarle otros alimentos? *Did you stop giving him food?*	_____
____ Le dió alimentos suaves (listar alimentos) *Did you give him soft food (list the foods)*	_____
____ Le dió purgantes? *Did you give him purgatives?*	_____
____ Le dió aceite fino? *Did you give him mineral oil?*	_____
____ Le dió aceite de oliva? *Did you give him olive oil?*	_____
____ Le dió leche de magnesia? *Did you give him milk of magnesia?*	_____
____ Le dió Alka Seltzer? *Did you give him Alka Seltzer?*	_____
____ Le dió suero inyectado? *Did you give him injected suero?*	_____
____ Le dió suero tomado? Por ejemplo: Sobre Sal Kindergol *Did you give him suero to drink? For example, Sobre Sal Kindergol*	_____
____ Qué cantidad le dió? *How much did you give him?*	_____
____ Con que frecuencia le dio esa cantidad? *How often did you give him this quantity?*	_____
____ Le dió limonada? *Did you give him lemonade?*	_____
____ Qué cantidad? *How much?*	_____
____ Con que frecuencia? *How frequently?*	_____
____ Le dio alguna pastilla? *Did you give him some pills?*	_____
____ Llevó al niño al hospital, Clínica, Centro de Salud o Dispensario Médico? *Did you take your child to the hospital, clinic, Health Center or Medical Dispensary?*	_____

...1...

11) (Continuación...) *(Continuation)*

_____ Llevó al niño donde el curandero? ( ) _____
Did you take your child to the folk doctor?

_____ Le hizo alguna medicina aquí en su casa? (Especificar) ( ) _____
Did you give him any medicine here in your house? Specify _____

12) ¿QUE DIFERENTES CLASES DE DIARREA CONOCE UD.? (EJ: HAY DIARREAS QUE SON CAUSADAS POR UNA COSA Y OTRAS POR OTRA. ¿CUALES SON LAS CLASES QUE UD. CONOCE?) AE _____
What different kinds of diarrhea do you know? (For example: there are diarrheas that are caused by one thing and others by another thing. Which are the kinds that you know. Explain, if necessary)

1) No conoce diversas clases ( )
Doesn't know diverse kinds
2) No sabe ( )
Doesn't know
Conoce diversas clases ( ) Menciona: *Knows diverse kinds* *Mention:*
3) Por la comida ( )
From food
4) Desgasto ( )
Upset
5) De calor o de sol ( )
Heat or sun
6) De mal genio ( )
From bad temperament
7) Flatoso, chingaatosa, aguada ( )
watery
8) Empacho ( )
Indigestion
9) De sangre ( )
Bloody diarrhea
10) De vasca ( )
Mucous
11) De microbios ( )
From bacteria
12) De la leche ( )
From milk
13) De susto ( )
From fright, scare
14) De la suciedad ( )
From dirt, filth
Otros ( ) Especifique: _____
Others *Specify* _____

13) ¿CUANDO SABE UD. QUE LA DIARREA ES GRAVE? (SERIA, PELIGROSA, ETC.) AE. *When do you know that the diarrhea is grave? (Serious, dangerous, etc.) (Explain, if necessary)* _____

1) Cuando es seguido ( )
When it is continuous
2) Cuando es recia ( )
3) Cuando obran verde ( )
When it is green
4) Cuando es frecuente ( )
When it is frequent
5) Cuando hechan mucho o puro líquido ( )
When a lot of fluid
6) Cuando es con vasca ( )
Mucus filled
7) Siempre es grave ( )
It is always grave
8) Otras razones _____
Other reasons
_____
9) No sabe _____
Don't know

.../...

14) ¿A QUIEN CONSULTAN UDS. CUANDO SUS NIÑOS TIENEN DIARREA? _____
Whom do you consult when your children have diarrhea?

1) A nadie ( )
No one
2) Médico ( )
Doctor
3) Centro de Salud ( )
Health Center
4) Dispensario ( )
Dispensary
5) Hospital ( )
Hospital
6) Curandero ( )
Folk doctor
7) Farmacia ( )
Pharmacy
8) Vecinos ( )
Neighbors
9) Familiares ( )
Friends, relatives
10) Profesora ( )
Professor
11) Inspector sanitario ( )
Sanitation Inspector
12) Cura ( )
Priest
13) Boticaria ( )
Druggist's wife
Otros *Others* ( )
Especifique: *Specify:* _____
_____

15) ¿QUE LE DA O QUE HACE SU VECINA A SUS NIÑOS CUANDO TIENEN DIARREA? *What does your neighbor do or give their children when they have diarrhea?* _____

1) Ir donde médico ( )
Go to the doctor
2) Ir al Centro de Salud( )
Go to the Health Center
3) Ir al Dispensario u hospital ( )
Go to the dispensary or hospital
4) Ir al curandero ( )
Go to the folk doctor
5) Le dará pastillas ( )
Give him pills
6) Le dará purgante ( )
Give him purgatives
7) Le dará alimentos suaves ( )
Give him soft foods
8) Suspenderá alimentación ( )
Stop feeding
9) Dará super-limonada ( )
Give him super lemonade
10) Nada especial ( )
Nothing special
11) No sabe ( )
Don't know
Otro *Other* ( )
Especifique: *Specify:* _____
_____

16) ¿CREE UD. QUE LA DIARREA SE PUEDE PREVENIR? AE _____
Do you believe that diarrhea can be prevented? (Explain, if necessary)

SI _____. COMO? *Yes* *How?*

1) Con el aseo ( )
With cleanliness
2) Lavar frutas ( )
Wash fruits
3) Cocinar bien la comida ( )
Cook the food well
4) Lavar manos ( )
Wash hands
5) Usar la letrina ( )
Use the privy, Latrina
6) Tomar pastillas ( )
Take pills
7) No sabe ( )
Don't know
Otros ( ) Especifique: _____
Others *Specify:*
_____

NO_____. POR QUE? _____ *No* *Why?*

17) LA PROXIMA VEZ QUE UNO DE SUS TIERNOS O NIÑOS MENORES DE CINCO AÑOS TENGA DIARREA, COMO LO TRATARA CUANDO LE COMIENZE LA DIARREA? *The next time that one of your children age 5 or under has diarrhea, how would you treat the diarrhea when it begins?* _____

(Indique la respuesta en Columna A)
(Indicate response in Colum A)

18) ¿QUE HARIA UD. DESPUES DEL PRIMER DIA? _____
What would you do after the first day?
(Indique la respuesta en Columna B)
(Indicate response in Colum B)

19) ¿QUE HARA UD. SI NO SE DETIENE *What would you do if it didn't stop?* (Indique la respuesta en Columna C). *(Indicate response in Colum C)* _____

	A	B	C
1. Ir donde médico *Go to the doctor*	( )	( )	( )
2. Ir al Centro de Salud *Go to the Health Center*	( )	( )	( )
3. Ir al Dispensario u hospital *Go to the dispensary or hospital*	( )	( )	( )
4. Ir al curandero *Go to the folk doctor*	( )	( )	( )
5. Le dará pastillas *Give him pills*	( )	( )	( )
6. Le dará purgantes *Give him purgatives*	( )	( )	( )
7. Le dará alimentos suaves *Give him soft food*	( )	( )	( )
8. Suspenderá alimentación *Stop food*	( )	( )	( )
9. Dará super-limonada *Give him super Lemonade*	( )	( )	( )
10. Nada especial *Nothing special*	( )	( )	( )
11. No sabe *Don't know*	( )	( )	( )
Otro *Other*	( )	( )	( ) Especifique: *Specify:* _____

20) HA OIDO UD. HABLAR DE SUPER LIMONADA? _____
HAVE YOU HEARD TALK OF SUPER LIMONADA?

NO _____ (Salte a Pregunta 24) *(Skip to Question 24)*
No

SI _____ *Yes* Para que sirve Super Limonada? *For what do you serve Super Limonade?*

2) Para la diarrea *For Diarrhea*	( )
3) Para la calentura *For the heat*	( )
4) Calma estómago *Calm the stomach*	( )
5) Le refresca *Refreshes you*	( )
6) Reponer agua perdida *Replace lost water*	( )
7) No sabe *Don't know*	( )
Otro *Other*	( ) Especifique: *Specify:* _____

21) DONDE PUEDE CONSEGUIRLA? _____
WHERE CAN YOU GET IT?

1) En las Ventas *In the stores*	( )
2) En las farmacias *In the pharmacies*	( )
3) En el Centro de Salud ; espital, Dispensario *In the Health Center, hospital, dispensary*	( )
4) Se hace en casa *It is made in the house*	( )
5) No sabe *Don't know*	( )
Otro *Other*	( ) Especifique: *Specify:* _____

22) COMO LA HACE? _____
HOW IS IT MADE?

1) Se compra *It is bought*	( )
2) Se la da el médico, Centro de Salud, Hospital *The doctor (Health Center, hospital) gives it to you*	( )
3) Usó más de un litro de agua *Use more than a liter of water*	( )
4) " un litro de agua *a liter of water*	( )
5) " menos de un litro de agua *less than a liter of water*	( )
6) " más de 2 cucharaditas de azúcar *more than 2 teaspoons of sugar*	( )
7) " 2 cucharaditas de azúcar *2 teaspoons of sugar*	( )
8) " menos de 2 cucharaditas de azúcar *less than 2 teaspoons of sugar*	( )
9) " más de 1/2 cucharadita de azúcar *more than 1/2 teaspoon of sugar*	( )
10) " más de 1/2 cucharadita de sal *more than 1/2 teaspoon of salt*	( )
11) " 1/2 cucharadita de sal o un puntito *1/2 teaspoon of salt or a pinch*	( )
12) " Jugo de limón *juice of lemon*	( )
Otras mezclas *Other mixtures, ingredients*	( ) Especifique: *Specify:* _____

23) CUANTO LE DA CADA DIA A SU NIÑO? _____
HOW MUCH DO YOU GIVE YOUR CHILD?

1) Un litro cada día *A liter each day*	( )
2) Una taza al día *A cup a day*	( )
3) Tres cucharadas al día *Three teaspoons a day*	( )
4) No sabe *Don't know*	( )
Otro *Other*	( ) Especifique: *Specify:* _____

24) QUE HACE LA DIARREA AL CUERPO DEL NIÑO? _____
WHAT DOES THE DIARRHEA DO TO THE BODY OF THE CHILD?

1) Lo desnutre ( )
It starves
2) Lo desgasta ( )
It wastes away the body
3) Lo pasma ( )
It causes a body spasm
4) Lo debilita ( )
It weakens the body
5) Lo pone dundoo ( )
6) Lo consume ( )
It consumes
7) Lo mata ( )
It kills
8) Lo deshidrata ( )
It dehydrates the body
9) No sabe ( )
Don't know
Otros ( ) Especifique._____
Others *Specify.*
_____

25) CUANTO ES UN LITRO? SI YO LE PIDO QUE ME DE UN LITRO DE AGUA QUE HARIA... ENSEÑEME: *HOW MUCH IS A LITER? IF I ASK YOU TO GIVE ME A LITER OF WATER YOU WOULD . . . SHOW ME.* _____

1) Tiene recipiente de 1 litro ( )
She has a container of 1 liter
2) 4 tasas ( )
4 cups
3) No tiene un recipiente de 1 litro pero sabe cuanto es ( )
Don't have a container of 1 liter but you know how much it is
4) Estimado muy pequeño, menos de 1 litro ( )
Estimate very small, less than 1 liter
5) Estimado muy grande, más que 1 litro ( )
Estimate very large, more than 1 liter
6) No sabe ( )
Don't know

26) CREE UD. QUE SU NIÑO MAS PEQUEÑO PUEDA TOMARSE UN LITRO DE LIMONADA EN UN DIA CUANDO TIENE DIARREA? _____
DO YOU BELIEVE THAT YOUR YOUNGEST CHILD CAN DRINK A LITER OF LEMONADE IN ONE DAY?

SI _____ COMO HARA PARA QUE SE TOME UN LITRO?
Yes. *HOW WOULD YOU DO IT IN ORDER THAT A LITER IS DRUNK?*

A. Se lo daría en botella ( )
You would give it to him in a bottle
B. " " " en cucharita ( )
on a teaspoon
C. " " " en taza o pocillo ( )
in a cup
1a. De un solo ( )
All at once
2a. Poco a poco ( )
Little by little
3a. No sabe ( )
Don't know
Otro ( ) Especifique_____
other *Specify*
_____

.../...

26) (Continuación...) *(Continuation)* _____

NO _____. POR QUE DICE QUE NO PUEDE TOMAR UN LITRO AL DIA?
No *WHY DO YOU SAY THAT HE CAN'T DRINK A LITER A DAY?*

4) Es mucho ( )
It's a lot
5) Es tierno ( )
He is too young, delicate
6) Es ácida ( )
It is acid
Otro ( ) Especifique:_____
Other *Specify*
_____

NO SABE ____
Don't know

27) HACE UD. LIMONADA ALGUNA VEZ? _____
DO YOU MAKE LEMONADE SOMETIMES?

SI _____. COMO PREPARA LA LIMONADA?
Yes *HOW DO YOU PREPARE (MAKE) LEMONADE?*
_____
_____
_____
_____

NO ____.
No

28) POR QUE NO HACE LIMONADA? _____
WHY DON'T YOU MAKE LEMONADE?

1) No estoy enfermo ( )
I am not sick
2) No acostumbro ( )
I am not accustomed to
3) No me cae bien ( )
It doesn't agree with me
4) No me gusta ( )
I don't like it
5) No tengo sed ( )
I am not thirsty
6) No tengo limones ( )
I don't have Lemons
7) No tengo azúcar ( )
I don't have sugar
8) No sabe ( )
Don't know
Otro ( )
Other
Especifique:_____
Specify:
_____

29) SIEMBRA UD. LIMONES? (PREGUNTELE QUE LE ENSEÑE EL ARBOL) _____
DO YOU GROW (PLANT) LEMONS? (ASK HER TO SHOW YOU THE TREE)

1) SI, tiene un árbol; verificado ( ) Saltar a la Pregunta 32)
Yes, she has (verified) *Skip to Question 32)*
2) Dice que cultiva limones, pero no lo demuestra ( )
She says she cultivates lemons, she doesn't show the tree
3) NO, no cultiva limones ( )
No, she doesn't cultivate Lemons

30) PUEDE COMPRAR LIMONES POR AQUI? _____
CAN YOU BUY LEMONS HERE?
1) SI ( ) 2) NO ( ) 3) NO SABE ( )
Yes *No* *Don't know*

31) CUANTO LE CUESTA?_____ _____
HOW MUCH DOES IT COST YOU?

.../...

32) DURANTE QUE MESES NO PUEDEN ENCONTRAR LIMONES AQUI? _____
AE. SIEMPRE HAY LIMONES ( )... NO HAY LIMONES DURANTE...
DURING WHAT MONTHS CAN'T YOU FIND LEMONS HERE? THERE ARE ALWAYS LEMONS ( )... THERE AREN'T LEMONS DURING...

1) Enero *January*	( )	8) Agosto *August*	( )
2) Febrero *February*	( )	9) Septiembre *September*	( )
3) Marzo *March*	( )	10) Octubre *October*	( )
4) Abril *April*	( )	11) Noviembre *November*	( )
5) Mayo *May*	( )	12) Diciembre *December*	( )
6) Junio *June*	( )	13) No sabe *Don't know*	( )
7) Julio *July*	( )	14) Nunca *Never*	( )

33) TIENE UD. AZUCAR EN SU CASA EN ESTOS MOMENTOS? _____
DO YOU HAVE SUGAR IN YOUR HOUSE AT THIS MOMENT?
1) SI - Tiene en casa; verificado ( ) (Salte a 36)
Yes - She has sugar in the house; verified. (Skip to 36)
2) Dice que tiene en casa pero no la enseña ( )
She says she has sugar in the house but she doesn't show it
3) NO - Dijo no tener en casa ( )
No - She said she doesn't have sugar in the house

34) EN QUE CANTIDAD COMPRA UD. AZUCAR? _____
IN WHAT QUANTITY DO YOU BUY SUGAR?

35) CUANTO CUESTA ESA CANTIDAD? (Nombre cantidad) _____
HOW MUCH DOES THIS QUANTITY COST? (Name the quantity)

36) TIENE SAL EN SU CASA EN ESTOS MOMENTOS? _____
IS THERE SALT IN THE HOUSE AT THIS MOMENT?
1) SI - Tiene en casa y la enseña ( ) (Asegúrese, pida que se la enseñe).
Yes - She has salt in the house and she shows it. (Be certain, ask that she show it to you)
2) Dice que tiene en casa pero no la enseña ( )
She says she has salt in the house but she doesn't show it
3) NO - Dijo no tener en casa ( )
No - She said she doesn't have salt in the house
EN QUE CANTIDAD COMPRA UD. LA SAL? _____
IN WHAT QUANTITY DO YOU BUY SALT?
Cuánto cuesta esa cantidad? (Nombre cantidad) _____
How much does this quantity cost? (Name the quantity)

37) CUANTO ES UNA CUCHARADITA? SI LE PRECUNTARA QUE LE DIERA A SU NIÑO UNA CUCHARADITA DE MEDICINA, CUANTO LE DARIA. DEMUESTREME COMO MEDIRIA LA CUCHARADITA. _____
HOW MUCH IS A TEASPOON? IF I WERE TO ASK YOU TO GIVE YOUR CHILD A TEASPOON OF MEDICINE, HOW MUCH WOULD YOU GIVE THE CHILD? SHOW ME HOW YOU WOULD MEASURE THE TEASPOON.
1) Tiene una cucharita ( )
She has a teaspoon
2) No tiene la cucharita, pero sí el cálculo correcto ( )
She doesn't have a teaspoon, but she calculates it correctly
3) Cálculo muy pequeño/menos de una cucharita calculada ( )
Calculates very small/ less than a calculated teaspoon
4) Cálculo muy grande/más de una cucharita calculada ( )
Calculates very large/ more than a calculated teaspoon

.../...

38) Y SI LE PRECUNTARA QUE LE DIERA A SU NIÑO UNA CUCHARADA DE MEDICINA, ENSEÑEME COMO MEDIRIA LA CUCHARADA. _____
AND IF YOU WERE TO ASK HER TO GIVE HER CHILD A TABLESPOON OF MEDICINE, SHOW ME HOW YOU WOULD MEASURE THE TABLESPOON.
1) Tiene la cuchara ( )
She has a tablespoon
2) No tiene la cuchara, pero sí el cálculo correcto ( )
She doesn't have a tablespoon, but she calculates it correctly
3) Cálculo muy pequeño/menos de una cucharada calculada ( )
Calculates very little/less than a calculated tablespoon
4) Cálculo muy grande/más de una cucharada calculada ( )
Calculates very large/ more than a calculated tablespoon
USA EL MISMO UTENSILIO PARA LAS DOS MEDIDAS ( )
Use the same utensil for the two measures

39) CUANTAS HORAS OYO LA RADIO LA SEMANA PASADA? AE _____
HOW MANY HOURS DID YOU LISTEN TO THE RADIO LAST WEEK?

1) Ninguna *None*	( )	4) 3 - 5 horas *3 - 5 hours*	( )
2) Menos de una hora *Less than an hour*	( )	5) 5 - 15 horas *5 - 15 hours*	( )
3) 1 - 3 horas *1 - 3 hours*	( )	6) Más - 15 horas *More than 15 hours*	( )

40) EN CUALES DIAS OYO UD. EL RADIO LA SEMANA PASADA? AE _____
ON WHAT DAYS DID YOU LISTEN TO THE RADIO LAST WEEK?

1) Todos los días *Every day*	( )		
2) Lunes *Monday*	( )	6) Martes *Tuesday*	( )
3) Miércoles *Wednesday*	( )	7) Jueves *Thursday*	( )
4) Viernes *Friday*	( )	8) Sábado *Saturday*	( )
5) Domingo *Sunday*	( )	9) No sabe *Don't know*	( )

41) DURANTE QUE HORAS OYO UD. EL RADIO MAS SEGUIDO? AE _____
DURING WHAT HOURS DO YOU LISTEN TO THE RADIO MOST CONTINUOUSLY?

1) Más temprano que las 5 *Earlier than 5:00*		( )
2) Mañana: 5 - 7 *Morning*		( )
	7 - 9	( )
	9 - 12	( )
3) Tarde: 12 - 2 *Afternoon*		( )
	2 - 5	( )
	5 - 7	( )
	7 - 9	( )
4) Más tarde *Late afternoon*		( )
5) Ninguna *None*		( )

42) CUAL ES SU ESTACION FAVORITA? _____
WHAT IS YOUR FAVORITE STATION?

1) Ninguna *None*	( )	2) Corporación *Corporation*	( )
3) Radio X		4) Mundial *World*	( )
5) No sabe *Don't know*	( )	Otros _____ *Others*	

43) QUE ES LO QUE MAS OYE UD. EN EL RADIO, LO QUE MAS LE GUSTA? _____
WHAT DO YOU LISTEN TO MOST ON THE RADIO? WHAT DO YOU LIKE MOST?

1) Noticias ( )
News
2) Pancho Madrigal ( )
"Pancho Madrigal"
3) Indio Filomeno ( )
"Indian Filomena"
4) Deportes ( )
Sports
5) Música Ranchera ( )
Ranchera Music
6) Novelas (Especifique) ( ) _____
Novels (specify)
_____

Otros *Others* ( ) _____

_____ _____

44) HA OIDO UNA VEZ UN ANUNCIO DE RADIO O PROGRAMA DONDE HABLA COMO TRATAR LA DIARREA? *HAVE YOU EVER HEARD A RADIO ANNOUNCEMENT OR PROGRAM WHERE THEY SPEAK OF TREATING DIANHHEA?* _____

NO ( )
No
SI ( ) QUE DECIA? _____
Yes *What did it say?*
_____
_____

45) HA OIDO ALGUNA VEZ UN ANUNCIO O PROGRAMA SOBRE SUPER LIMONADA? *HAVE YOU EVER HEARD AN ANNOUNCEMENT OR PROGRAM ABOUT SUPER LEMONADE?* _____

NO ( )
No
SI ( ) QUE DECIA? _____
Yes *What did it say?*
_____
_____

46) HA OIDO ALGUNA VEZ UN ANUNCIO O PROGRAMA EN QUE HABLA EL DOCTOR DEL CENTRO DE SALUD? *HAVE YOU EVER HEARD AN ANNOUNCEMENT OR PROGRAM IN WHICH THE DOCTOR SPEAKS FROM THE HEALTH CENTER?* _____

NO ( )
No
SI ( ) QUE DECIA? _____
Yes *What did it say?*
_____
_____

.../...

47) CUANTOS AÑOS TIENE UD.? (INDIQUE EN COLUMNA A) _____
HOW OLD ARE YOU? (Indicate in Column A)

48) CUANTOS AÑOS TIENE LA MAMA DEL NIÑO? (INDIQUE EN COLUMNA B) _____
HOW OLD IS THE MOTHER OF THE CHILD? (Indicate in Column B)

49) CUANTOS TIENE EL PADRE DE LA FAMILIA? (INDIQUE EN COLUMNA C) _____
HOW OLD IS THE FATHER OF THE FAMILY? (Indicate in Column C)

	A	B	C
1) 15 - 19	( )	( )	( )
2) 20 - 24	( )	( )	( )
3) 25 - 34	( )	( )	( )
4) 35 - 44	( )	( )	( )
5) 45 o más *45 or older*	( )	( )	( )
6) No sabe *Don't know*	( )	( )	( )

50) CUAL FUE EL ULTIMO GRADO EN LA ESCUELA QUE HIZO UD Y EL PADRE DE LA CASA? *WHAT WAS THE LAST GRADE YOU REACHED AND THE FATHER OF THE HOUSE COMPLETED?* _____

	Respondedor *Responder*	Padre de Familia *Father of Family*
1) No asistió Escuela *Didn't attend school*	( )	( )
2) Algo de primaria *Some primary school*	( )	( )
3) Completó primaria *Completed primary school*	( )	( )
4) Algo de escuela secundaria *Some secondary school*	( )	( )
5) Completó escuela secundaria *Completed secondary school*	( )	( )
6) Vocacional *Vocational*	( )	( )
7) Algo de universidad *Some university*	( )	( )
8) Otro *Other*	( )	( )
9) No sabe *Don't know*	( )	( )

51) CUAL ES LA OCUPACION PRINCIPAL DEL JEFE DE LA FAMILIA? _____
WHAT IS THE MAIN OCCUPATION OF THE HEAD OF THE FAMILY?
_____

52) TIENE RADIO? _____
DO YOU HAVE A RADIO?

1) SI ( ) FUNCIONA *Functions* SI ( ) NO ( ) VERIFICADO *Verified* SI ( ) NO ( )
Yes *Yes* *No* *Yes* *No*
2) NO ( )
No

53) DE DONDE TOMA EL AGUA? _____
FROM WHERE DO YOU GET WATER?

1) Comprada *Buy* ( )
2) Pozo *Well* ( )
3) Río, lago *River, Lake* ( )
4) Tubería *Pipes* ( )
Otro *Other* ( ) _____

.../...

54) TIENE LA CASA ELECTRECIDAD? SI ( ) NO ( ) _____
DO YOU HAVE ELECTRICITY IN THE HOUSE? *Yes* *No*

55) SERVICIO HIGIENICO: _____
HYGIENE SERVICE:

1) Inodoro SI ( ) NO ( )
Water closet *Yes* *No*

2) Excusado o letrina SI ( ) NO ( )
Toilet or latrine *Yes* *No*

3) Ninguno de los dos ( )
None of the two

Otro ( ) _____
Other

56) PUEDE DECIRME SI HAY ALGUNAS DE ESTAS COSAS CERQUITA DE AQUI? _____
CAN YOU TELL ME IF THERE ARE SOME OF THESE THINGS VERY NEAR HERE?

	SI *Yes*	NO *No*	NO SABE *Don't Know*
1) Centro de Salud, Dispensario *Health Center, Dispensary*	( )	( )	( )
2) Escuela Primaria *Primary School*	( )	( )	( )
3) Alimentación escolar *School feeding program*	( )	( )	( )
4) Telégrafo, teléfono *Telegraph, telephone*	( )	( )	( )
5) Electrocidad *Electricity*	( )	( )	( )

57) CUANDO FUE LA ULTIMA VEZ QUE UN MIEMBRO DE SU FAMILIA FUE A UN CENTRO DE SALUD? _____
WHEN WAS THE LAST TIME A MEMBER OF YOUR FAMILY WENT TO A HEALTH CENTER?

1) Hace menos de 1 mes ( )
Less than 1 month ago

2) De uno a 3 meses ( )
From 1 - 3 months

3) De 3 a 6 meses ( )
From 3 - 6 months

4) De 6 meses a 1 año ( )
From 6 months to 1 year

5) Hace más de 1 año ( )
More than a year

6) No sabe ( )
Don't know

Otro ( )
Other

58) QUEDO UD CONVIDADO A VOLVER A LLEGAR? _____
WERE YOU INVITED TO RETURN AGAIN?

SI ( )
Yes

NO SABE ( )
Don't know

NO ( ) POR QUE? _____
No *Why?*

_____

59) COMO SE LLAMA UD. SEÑORA? _____
WHAT IS YOUR NAME?

111

AGRADEZCA LA ENTREVISTA
THANKS FOR THE INTERVIEW

APPENDIX B:

QUESTIONNAIRE TO COMMUNITY WORKERS

August 1, 1975

NUTRITION CENTER OF THE PHILIPPINES

Questionnaire for doctors, teachers and others working on the community

Location: _____
(name of barrio and poblacion)

Respondent's Name: _____

Respondent's Title and Function: _____

_____

Date: _____

1. Approximately how many families come to you for advice each month?

_____

2. Do you ever give advice on nutrition or child care? ( ) Yes ( ) No

3a. At what age are children given "am" in your area ? _____

b. At what age are children given "lugaw" in your area? _____

c. Approximately what percent of the households give their children lugaw? Or out of every 100 households how many will feed children lugaw?

_____

4a. Do the mothers ever add anything to the lugaw? ( ) Yes ( ) No...If no, skip to Question 5.

b. What do they add? _____

_____

5a. Have you ever heard of adding cooking oil or lard to lugaw?

( ) Yes ( ) No... If no, skip to Question 5f.

b. Where did you hear about this? _____

c. Do any mothers in your area add cooking oil or lard to their children's lugaw? ( ) Yes ( ) No... If no, skip to Question 5f.

d. Approximately what percent of the mothers put cooking oil in their children's lugaw? _____

e. How much oil do they put in a soup plate amount of lugaw? _____

f. What do you think of adding oil to lugaw? _____

6a. Have you ever heard of adding fresh or dried fish to lugaw?

( ) Yes ( ) No... If no, skip to Question 6f.

b. Where did you hear about this? _____

c. Do any mothers in your area add fish to their children's lugaw?

( ) Yes ( ) No... If no, skip to Question 6f.

d. Approximately what percent of the mothers put fish in their children's lugaw?

_____

e. How much fish do they put in a soup plate amount of lugaw? _____

f. What do you think about adding fish to lugaw? _____

_____

_____

7a. Have you ever heard of adding pieces of cooked and mashed vegetables to lugaw? ( ) Yes ( ) No.... If no, skip to Question 7f.

b. Where did you hear about this? _____

c. Do any mothers in your area add cooked and mashed vegetables to their children's lugaw? ( ) Yes ( ) No... If no, skip to Question 7f.

d. Approximately what percent of the mothers put pieces of vegetables in their children's lugaw? _____

e. How much vegetables do they put in a soup plate amount of lugaw? _____

_____

f. What do you think of adding vegetables to lugaw? _____

_____

8. What percent of the households have working radio? _____

9. Does your household have a working radio? ( ) Yes ( ) No

10a. Have you heard any radio spots about Liza and her mother?

( ) Yes ( ) No....If no, skip to Question 11

b. What do you remember the messages saying? _____

_____

_____

APPENDIX C:

MESSAGE TEST QUESTIONNAIRE

Appendix C

MESSAGE TEST: PHILIPPINES

July 24, 1977

MESSAGE CODE: W _____ WD _____ Fish Village _____
O _____ OD _____ Agr Village _____
V _____ VD _____ Industry Village _____

1. Hello, I am _____ from _____ and we are making a study of radio messages for mothers. May I speak with the mother. Do you or anyone in your house have a child under 3 years of age?

   ( ) Yes.... what are their ages? _____ _____ _____
   ( ) No

2. Are you or anyone in your house pregnant? ( ) Yes ( ) No

   Ask to speak with the mother of a child under 3 or pregnant only if available, otherwise continue with respondent

3. What do you and others in the community usually feed new born babies (PROBE). Are they breastfeed? Are they fed anything else for the first 6 months?

   _____

4. Is that how you fed your last child? ( ) Yes ( ) No.... what was different? _____

5. Is that how you will feed your next child? ( ) Yes ( ) No... why?

   _____

6. When does one wean a baby? At what age? _____

7. How does one wean a baby? What do you feed him? _____

   _____

8. Is that what you did with your last child? ( ) Yes ( ) No... then what?

   _____

9. Is that what you will do with your next child? ( ) Yes ( ) No... then what? _____

10. What is a vitamin? What foods have vitamins? What do vitamins do?

    _____

11. What is Protein? What does it do? What foods have Protein?

    _____

12. Is cooking oil or lard expensive in your area? ( ) Yes ( ) No
    b. What kinds of oil or lard are in house used regularly? _____
    c. Where do you buy cooking oil and lard? _____

13a. Is fish expensive? ( ) Yes ( ) No
    b. Is fish expensive in November through February? ( ) Yes ( ) No
    c. Do you usually eat dry fish or fresh fish? ( ) dry ( ) fresh

Now I would like you to listen to a radio message. This is a message which will be on the radio.

Message _____

14. What did the message say? What did it say to do? _____

    _____

15. What do you think of that? Is it a good idea or a bad idea? Why?

    _____

16. Have you ever fed a 6 month old baby like that?
    ( ) Yes
    ( ) No.... why not? _____

17. Who taught you to take care of your baby? _____
    Does your mother give you advice? ( ) Yes ( ) No

18. If your mother told you to do what Lita's mother said, what would you do?

    _____

19. If a doctor told you to do that what would you do? _____

20. Do you believe the advice is wise? ( ) Yes ( ) No
    Why? _____

21. From what you heard in the message, who would you go to for advice?

    _____

22. Is there a nutritionist in your area? ( ) Yes ( ) No
    a doctor? ( ) Yes ( ) No
    a Home Management Technician? ( ) Yes ( ) No

23. Where does Lita's mother get her advice? _____

24. Do doctors ever give advice on radio, in the romances? ( ) Yes ( ) No

25. Do you feed lugaw to a baby? ( ) Yes... at what age? _____
    ( ) No.... why not? _____
    At what age do you feed fish? _____

26. If you put oil in your baby's food, how much would you put in?

_____

27a. At what age do you feed rice? _____
b. At what age do you feed vegetables? _____
c. At what age do you feed fish? _____

28. VD WD Is it chop and cook well or cook and mash? _____
WD WD What are vitamins? What do they do? What foods have them?

_____

WD How much is a drop? _____
What does "Cucharita" mean? _____
How much is a teaspoon? _____
CD What does "strange" mean? _____
ND How do you wash salt from fish? _____

Now I would like you to listen to another message

Message _____

29. What did the message say? What did it say to do? _____

_____

30. What do you think of that? Is it a good idea or a bad idea? Why?

_____

31. From what you heard in the message, who would you go to for advice?

_____

32. Where does Lita's mother get her advice? _____
Do doctors ever give advice on radio, in the romances? _____

VD WD What are vitamins? What do they do? What foods have them?

_____

WD What is protein? What foods have it? What does it do?

_____

CD How much is a drop? _____
What does "Cucharita" mean? _____
How much is a teaspoon? _____
CD What does "strange" mean? _____
WD How do you wash salt from fish? _____

33. Do you think it would be better to have Lita's mother, or Lita's grandmother give the advice?
Lita's mother ( ) Lita's grandmother ( )

Why? _____

34. Do you believe a 6 month old baby can digest -
Lugaw? ( ) Yes ( ) No Why? _____
Rice? ( ) Yes ( ) No Why? _____
Fish? ( ) Yes ( ) No Why? _____
Vegetables ( ) Yes ( ) No Why? _____
Oil? ( ) Yes ( ) No Why? _____

35a. Do you think you will feed your baby oil when he is 6 months?
( ) Yes ( ) No Why? _____
b. Do you think you will feed your baby fish when he is 6 months?
( ) Yes ( ) No Why? _____
c. Do you think you will feed your baby rich when he is 6 months?
( ) Yes ( ) No Why? _____
d. Do you think you will feed your baby vegetables when he is 6 months?
( ) Yes ( ) No Why? _____

36. Would you like to hear more about Lita and her mother?
( ) Yes ( ) No Why? _____

37. Would you like a mother like Lita's? ( ) Yes ( ) No Why? _____

38. What type of work does the man of the house do? _____

39. How many people are in this house? _____

40. Description of house: _____

_____

Message Testing: Nicaragua

sitio_____ _____ ovember 21, 1975

COPIA - PRE- ENTREVISTAS

COPY TEST OF
NOVEMBER-DECEMBER 1975

1. Hola, me llamo _____ soy de _____ y estamos
Hello, my name is _____ I am from _____ and we are
haciendo un estudio sobre mensajes radiales para madres y niños
doing a study about radio messages for mothers and children under
menores de 5 años. Podría hablar con la Sra. de la casa que tenga
5 years of age. Would I be able to speak with the woman of the house
un niño de 5 años o menos.
that has a child age 5 or less.

1A. Cuantos niños tiene Ud. que tengan desde 0 mes hasta 5 años de
How many children do you have that are 5 years old or younger?
edad? _____

B. Cuales son las edades? _____ _____
What are their ages?

C. Tiene alguno que le este dando el pecho _____
Do you have some that you are breast-feeding
(pongd edad)
(give age)

2A. Han tenido diarrea alguna vez sus niños
Have your children under age 5 had diarrhea sometimes?
menores de 5 años? Si ( )
Yes
No ( ) descontinuado
No discontinued

B. Cuanto veces en ultimo año han tenido diarrea sus niños de 0 mes
How many times in the last year have your children age 5 and under
a 5 años? _____
had diarrhea?

3A. Que le da Ud. a sus niños cuando tienen diarrea? Que les da?
What do you give your children when they have diarrhea?

_____

B. Hay algo mas que Ud. hace cuando tienen diarrea? _____
Is there something else you do when they have diarrhea?

_____

4A. Que cree Ud. que es lo que le causa la diarrea? _____
What do you believe causes the diarrhea?

_____

B. Cree Ud. que es: (lea las alternativas) *(read the alternatives)*
Do you believe it is:

Una enfermedad muy seria *A very serious sickness*	Si ( ) *Yes*	No ( ) *No*
Una enfermedad menor *A lesser sickness*	Si ( ) *Yes*	No ( ) *No*
o algo normal en los niños *or something normal in children*	Si ( ) *Yes*	No ( ) *No*

5. Me gustaria que Ud. oyera este mensaje el cual se dira en la
I would like you to listen to this message which will be played
radio muy pronto (chequee el mensaje tocado)
on the radio very soon (check the message played)

# 1 General *General*	( )
# 2 El tratamiento correcto *The correct treatment*	( )
# 3 La vecina *The neighbor*	( )
# 4 Prevención *Prevention*	( ) (salta hasta pregunta # 13 *(skip to question #13)*

Que dijo el mensaje acerca de la diarrea ?
What did the message say about diarrhea?
Que fue lo que dijo que Ud. debe hacer ?
What was it that it said you should do?

_____

_____

6. Ha oido Ud. alguna vez que la diarrea se cura en esa forma?
Have you heard any time that diarrhea is cured in this way?
( ) si *yes* Donde *Where* _____
( ) no *no*

7A Que le dará Ud. a su niño la proxima vez que tenga diarrea?
What will you give your child the next time he has diarrhea?

_____

_____

8. Le dará Ud. a su niño Super-Limonada la próxima vez que tenga diarrea?
Will you give your child Super Lemonade the next time he has diarrhea?
( )si *yes* ( ) no *no*
Porqué ? _____
Why?

8A. Como se hace la Super-Limonada?
How is Super Lemonade made?

_____

_____

8B. Cuanto le debe darle Ud. a su niño cada día? _____
How much should you give your child each day?

_____

11. Which radio stations are received in your area? List below and put an X to the most popular ones.

_____ _____

_____ _____

_____ _____

_____ _____

12a. What health and nutrition facilities are in your barrio?

_____

_____

13. What if any nutrition, health, family planning or child care programmes are in your barrio?

_____

_____

14. From Barrio _____ how far are the following people of facilities? Fill in number of kilometer.

Doctor _____

Hospital _____

Nutritionist _____

Child & maternal health care center _____

Day care centers _____

School _____

####

TMC:pfm

MULTIPLIER QUESTIONNAIRE

Ministry of Public Health
Managua, Nicaragua.

PROJECT: NUTRITIONAL EDUCATION THROUGH MASS MEDIA

Questionnaire for doctors, nurses, professors, and others working in the community.

1. Name_____ Date_____
2. Address of your residence _____
_____
3. Name of the community in which you work
_____
4. Population of the community _____
5. Position and title _____
6. Answer the questions about the community in which you work.

The community has:	YES	NO
Electricity	____	____
Telephone	____	____
Pipe line water	____	____
Health center	____	____
Dispensary	____	____
Health office (post)	____	____
School feeding program (lunch)	____	____
Hospital	____	____
Doctor	____	____
Pharmacy	____	____
Public Nutrition Center of Caritas	____	____
Minister of Public Health	____	____

The houses have:	Majority	Half	Few,	None
Closed wells	_____	_____	___	_____
Latrines	_____	_____	___	_____
Project of raising animals on the home level	_____	_____	___	_____

7. What is the approximate number of persons who ask you advice each week about Health, Nutrition, and MCH.
_____

8. How many folk doctors do you have in the community? _____

9. In your experience what health problems are most common that the people ask your advice on? _____, _____, _____, _____, _____.

10. In the community in which you work, what is the most common treatment that the mothers use when their (young) children have diarrhea? _____
_____

11. When the (young ones) and children have diarrhea in your community, do the mothers stop giving them food?
yes _____ no _____.

12. If food is taken away from them during the diarrhea, for how many days don't they give the child food? _____.

13. Usually do the mothers stop nursing her young ones when they have diarrhea? Yes _____ No _____

14. What advice do you give to the mothers when their children and young ones have diarrhea? _____
_____

15. Do you advise continuing or interrupting nursing your young when they have diarrhea? _____

16. Do you know with what the mothers cure the diarrhea of their children? _____

17. Have you heard messages on the radio about how to treat children and young ones when they have diarrhea?
Yes _____ No _____
If she answers "yes" what did the messages say? _____
_____

18. What do you think of this advice? _____
_____

19. What advice did the doctors and nurses give the mothers about the correct treatment when their children have diarrhea?
_____
_____
_____

20. What do you think of this advice?
_____

21. Have you heard talk of Super Lemonada? Yes ____ No _____

22. If she answers "yes" what is Super Lemonade and for what is it served? _____

23. Where can one get Super Lemonada? _____
_____

24. How is Super Lemonada prepared? _____
_____

25. Do you have a radio that functions? Yes _____ No _____

26. What are the hours during which you listen to the radio most frequently? _____

27. What is your favorite program? _____

28. Do you have a television that works? Yes _____ No _____

29. What are the hours during which you listen to the television most frequently? _____

ONLY FOR THE TEACHER

30. What are the difficulties that you are having developing the Man and Health Unit? _____
_____

31. Does your school have a feeding program [school lunch program]? Yes _____ No _____

32. Does your school have a program of students raising food gardens? Yes _____ No _____

33. Did you receive a pedagogical orientation in the last year? Yes _____ No _____ Date _____; from whom? _____

34. Do you have at your disposal didactic material for developing your educational activities?
None _____ Few _____ Sufficient _____

35. What material are you lacking? _____
_____

36. How many times were you visited by the Auxiliary or Department Inspector in the year 1975? _____
_____

19A Cuanto tiempo le dio el pecho a su ultimo hijo? hasta que edad?
Up to what age did you breast-feed your last child?

_____

_____

B. A que edad le did Ud. otros alimentos? _____
At what age did you give him other foods?

_____

19A. Cree Ud. que sería bueno dar solamente el pecho a su próximo niño
Do you believe that it would be good to only breast-feed your next child
hasta que llegue a los 6 meses?
until he reaches 6 months of age?

( ) Si
Yes

( ) No
No

B. Porqué dice eso? _____
Why do you say that?

_____

_____

20. Quien le da consejos a la madre en el mensaje? _____
Who gives advice to the mother in the message?

_____

21. Quien le da consejos a Ud. para tratar a sus niños cuando estan
Who gives you advice on treating your children when they are sick?
enfermos _____

_____ y quien mas .... _____
and who else

21.A Cree Ud. que los consejos del mensaje radial son buenos?
Do you believe that the advice of the radio message is good?

Si ( )
Yes

No ( )
No

B. Porque? _____
Why?

_____

22. Le gustaría oir mas acerca del Doctor del Centro de Salud a traves de la
Would you like to hear more about the doctor of the Health Center through
radio?
radio?

Si ( )
Yes

No ( )
No

22A. Porqué? _____
Why?

_____

_____

_____

23. Ha oido Ud. de algun suero para tomar ?
Have you heard of drinking suero?

( ) Si ..... Que cosa es ? _____
Yes *What is it?*

( ) No ..... Ha oido Ud. del algun suero? ( ) Si-que cosa es
No *Have you heard of suero?* *Yes - what is it*

_____ ( ) No
No

24. Cree Ud. que Super-Limonada es un suero para tomar.
Do you believe that Super Lemonade is a suero to drink?

( ) Si
Yes

( ) No
No

24A. Porque _____
Why?

_____

25. Que significan estas palabras? Que hacen ellos?
What do these words mean? *What do they do?*

a. microbio _____
amoebas

b. animalitos _____
parasites

c. purgantes *purgatives* _____

d. Empacho *indigestion* _____

e. ?donde esta el centro de salud? _____
Where is the health center?

26. Tiene Ud. radio?
Do you have a radio?

( ) Si — Trabaja — Si ( ) *Yes*
Yes *Does it work?* No ( ) *No*

( ) No .... Escucha Ud. el de los vecinos o amigos — Si ( ) *Yes*
No *Do you listen to your neighbor's or friend's radio?* No ( ) *No*

27. Que estación escucha ? _____
what station do you listen to?

_____

9A. Es la di ea una enfermedad?
Is diarrhea a sickness?
Si ( )
Yes
No ( )
No

B. Que le hace la diarrea a su niño? _____
What does the diarrhea do to your child?
_____

C. La diarrea hace perder mucho liquido al cuerpo?
Does the diarrhea make him lose much liquid from the body?
Si ( )
Yes
No ( )
No

10A. Debe de seguir dando alimentos a un niño cuando tiene diarrea?
Should you continue giving food to your child when he has diarrhea?
Si ( ) No ( )
Yes *No*

B. Porqué y en que forma _____
Why and in what form?
_____
_____

11A. Debe Ud. dar un purgante a su niño cuando tiene diarrea?
Should you give your child a purgative when he has diarrhea?
Si ( ) No ( )
Yes *No*

B. Porqué? _____
Why?
_____
_____

12. Si la diarrea sigue por mas de 3 dias que debe hacer? _____
If the diarrhea continues for more than 3 days what should you do?
_____
_____

13. Que fue lo que dijo el mensaje acerca de la diarrea? Que es lo que
What was it that the message said about diarrhea? What is it that
la causa y como puede prevenirla? _____
causes the diarrhea and how can it be prevented?
_____
_____

14A. Cree Ud. que el agua que Ud. toma esta sucia (contaminada) o cree
Do you believe that the water that you drink is dirty (contaminated) or
Ud. que es limpia ?
do you believe that it is clean?
( ) tiene suciedades
it has dirt
( ) limpia *clean*
( ) tiene enfermedades *has germs*

B. Deberia Ud. hervirla para tomarla?
Should you boil the water before drinking it?
( ) Si
Yes
( ) No
No

C. Porque? _____
Why?
_____
_____

15A. Cree Ud. que la suciedad causa diarrea?
Do you believe that dirt (filth) causes diarrhea?
( ) Si
Yes
( ) No
No

B. De donde viene la suciedad que causa la diarrea? _____
From where does this dirt (filth) come that causes the diarrhea?
_____
_____

C. Como puede Ud. matar la suciedad que causa la diarrea? _____
How can you kill the germs that cause diarrhea?
_____
_____

16A. Deberian sus niños lavarse las manos?
Ought your children to wash their hands?
Si ( ) Cuando ? _____
Yes *When?*
No ( )
No

B. Porque ? _____
Why?
_____

17A. Debe Ud. tapar sus alimentos?
Should you cover your food?
Si ( )
Yes
No ( )
No
Porque ? _____
Why?
_____

APPENDIX D:

LETTER TO COMMUNITY WORKERS

LETTER TO DOCTORS, TEACHERS, HOME/MANAGEMENT TECHNICIANS AND OTHER COMMUNITY WORKERS: PHILIPPINES

August 19, 1975

For the next twelve months, one-minute nutrition education messages will be broadcast over the radio stations of Iloilo and Bacolod. I am sure that you will hear them as will the families in your communities.

These messages will urge mothers to enrich the lugaw they give to their infants and young children. I am asking for your cooperation in reinforcing the messages when mothers come to you for advice.

The messages tell the mothers to begin feeding enriched lugaw to infants as early as six months, as a supplement to breast milk. In many areas, it is not the custom to begin supplemental feeding until the eighth or tenth month. After reviewing studies from all parts of the country, I am convinced that it is imperative that mothers begin to supplement breast milk with enriched lugaw from the sixth month. The nutrient needs of nearly all children exceed what breast milk and commercial milk can provide.

The messages instruct mothers to add bits of fish, chopped vegetables and small amounts of cooking oil or lard to the lugaw and feed regularly to infants from the sixth month, in addition to breast milk. Enriching lugaw with these foods is a strange and new idea for most mothers in rural areas.

New Foods Should be Introduced Gradually

Mothers may seek your advice after trying what the radio messages suggest, only to have their infants reject the new foods. As the sources of good nutrition information closest to our target group, your counsel is important if the infant is to accept new foods at six months.

Babies have to learn to eat solid foods, and their digestive systems have to adjust to them. Mothers may become discouraged because their child spits out the food. You should urge them to continue trying, but not forcing the infant to eat.

At four months, infants can begin with thin lugaw, mashed fruit and water in which vegetables have been cooked. By six months,

Fats and oils are necessary if the fat soluble Vitamins A, D, E, and K are to be utilized by the body.

The Importance of Vegetables and Fish in Lugaw

Enriching lugaw with small pieces of well-cooked and mashed fish and vegetables will provide the essential nutrients for the baby not found in brest milk. After the fifth or sixth month, breast milk cannot supply all the food necessary for an infant who may have doubled his weight since birth. In addition, introduction of these foods now will begin life-long habits of eating a more balanced diet.

Measures for Feeding the Infant

We have found that mothers often do not have an accurate perception of quantities. For them the words "drop" and "teaspoon" may have a meaning quite different than for us. Few have measuring spoons; rarely do they have medicinal droppers.

When a mother says that her child is sick from eating the enriched lugaw, ask her about the proportions of ingredients. She may have begun with "drops" that are teaspoons and teaspoons that are tablespoons.

Your cooperation in this campaign to educate mothers is essential. The radio can only do part of the job; the personal face to face contact that you have with the mothers in the barrios can convey important additional information. You can reinforce the message:

**Introduce new foods gradually. **Begin supplementary feeding at the fourth month. **Begin to feed enriched lugaw at the sixth month.

Thank you for your help.

Sincerely,

Dr. Florentino S. Solon
Executive Director
National Nutrition Council

the baby will enjoy thicker lugaw with fruit, mashed vegetables, including beans such as munggo, egg yolk, if they can afford it, finely chopped and mashed fish and up to a teaspoon of cooking oil or lard.

Sometimes infants get diarrhea or loose stools when new foods are started. This may cause the mother to stop altogether. Urge her to keep trying, eliminating only the last introduced food. Check to see if she is cooking and mashing the food thoroughly and not just taking it out of the family pot and that she is protecting it from flies.

Infants' Food Should be Specially Prepared

Because the foods recommended in the radio messages are adult foods, some mothers may not prepare them in the special ways necessary to insure acceptance by their babies.

Fish, if salted or dried, should be soaked to get the salt out. All fish should be chopped finely, thoroughly cooked, shredded and mashed into a pulp. Vegetables should be thoroughly cooked as well, for a longer time than for the family. Fibrous portions should be removed and the remainder cut into fine pieces, mashed and mixed with the lugaw.

Digestibility of Enriched Lugaw with Oil

Many mothers, and even doctors, nurses and others believe that infants cannot digest small amounts of solid foods during their sixth month. Tests that we have conducted throughout the country have proved if the food is well-prepared and introduced gradually, digestibility is not a problem and it is essential to normal growth.

Cooking oil and fatty foods in general are believed to cause diarrhea and stomach upsets for young children. To be sure fats and oils in large amounts will cause problems, but if the directions of the message are followed, the infants will enjoy better health: begin with a few drops of oil in the lugaw for first few days, gradually increasing the amount over the next ten days to two weeks until one teaspoon is being consumed daily. For infants between eight and twelve months, two teaspoons daily can be gradually introduced into the food.

The Importance of Fats and Oils to Infant Foods

The diets of many Philippine infants and children are chronically short of calories. Traditional staple foods such as rice, camote, or corn are too bulky to provide enough calories for infants and children. Because the diets are calorie short, costly protein foods such as fish are burned by the body as calories. Below standard weights and heights and high susceptibility to disease result.

APPENDIX E:

MESSAGES

One of six messages broadcast in the Philippines

VERSION 4

FISH, VEGETABLE, AND OIL MESSAGE WITH DOCTOR

Revised 12/7/75

MUSIC UP AND OUT

Lita: Mama, what are you giving my baby?

Mother: Lugaw, but mixed with green vegetables, fish, and a drop of oil.

Lita: Whose strange idea?

Mother: The doctor on the radio. Listen! He is on the radio now.

Doctor: (RADIO VOICE RECORDED) After six months a baby needs breastmilk and also lugaw, but lugaw must be mixed with fish that gives protein for muscles and brain. Green vegetables for vitamins. A drop of oil for more weight.

Lita: But, Mama, a six-month-old baby can't digest such foods.

Mother: Sh-h. Listen to the doctor on the radio.

Doctor: (CONTINUES AS BEFORE) A six-month-old baby *can* digest these foods. Just wash the salt from the dried fish, chop the vegetables, and cook them well, add a little oil and mash with the lugaw.

Lita: But, Mama, you didn't feed me like that.

Mother: I didn't know any better. Times change. You live and learn.

MUSIC UP AND OUT

Doctor: For help with your baby see the home management technician or community worker, or the local doctor.

* * * * *

One of six messages
broadcast in Nicaragua

MESSAGES FOR NICARAGUA
OPERATION SUPER LIMONADA
AS RECORDED FOLLOWING THE
SECOND WAVE INTERVIEWS
January 1977
(Typed 4/19/77)

DOÑA CARMEN: QUANTITY

PANCHO: Attention! Attention all you mothers that love your little babies. Listen what you must do when your child has diarrhea. Listen to Dona Carmen... she is the one that knows everything about everything.

MOTHER: Carmen.... listen to what the doctor at the health center recommended. I should give a liter of SUPER LIMONADA to the child. But I'm afraid. The baby is only six months old and a liter is too much.

DOÑA CARMEN: No child. What's too much? Don't you see that when your child is well the little one easily drinks a liter of water every day? It's the same.... and much better because the SUPER LIMONADA helps him overcome the barbarity of the diarrhea. Give it to him little by little.... and even when he is stubborn. Give it to him. Do you hear?

ANNOUNCER: Remember! When your child has diarrhea, give him a liter of SUPER LIMONADA little by little, all day, every day. The loss of the water weakens your child.... and he can die from it.